

small air forces observer

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October 2006

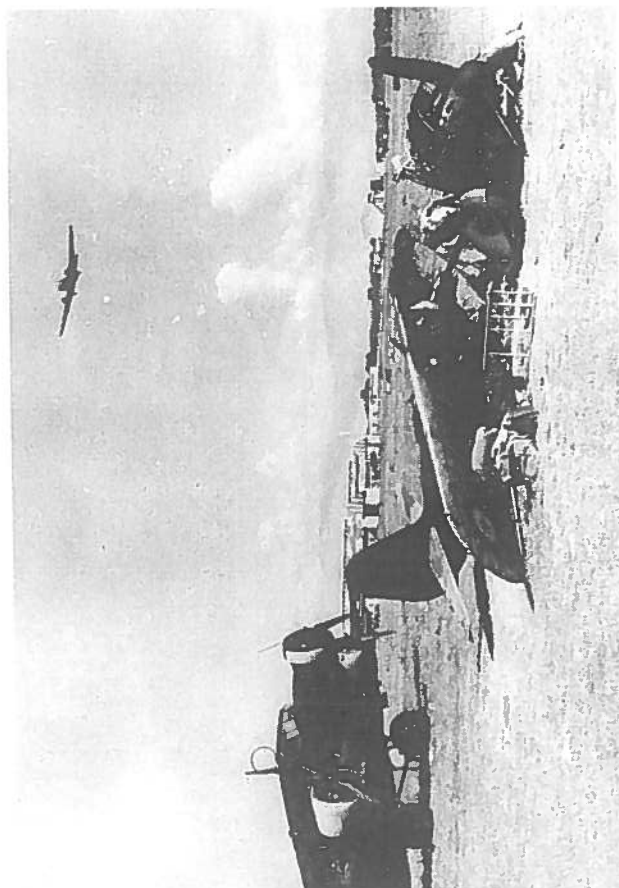
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The Hellenic PZL P .24 Fighters - Part 2
Danish Naval Air Service 1912-1940
Latin American Caproni AP-1
Brewster B-239s for Finland

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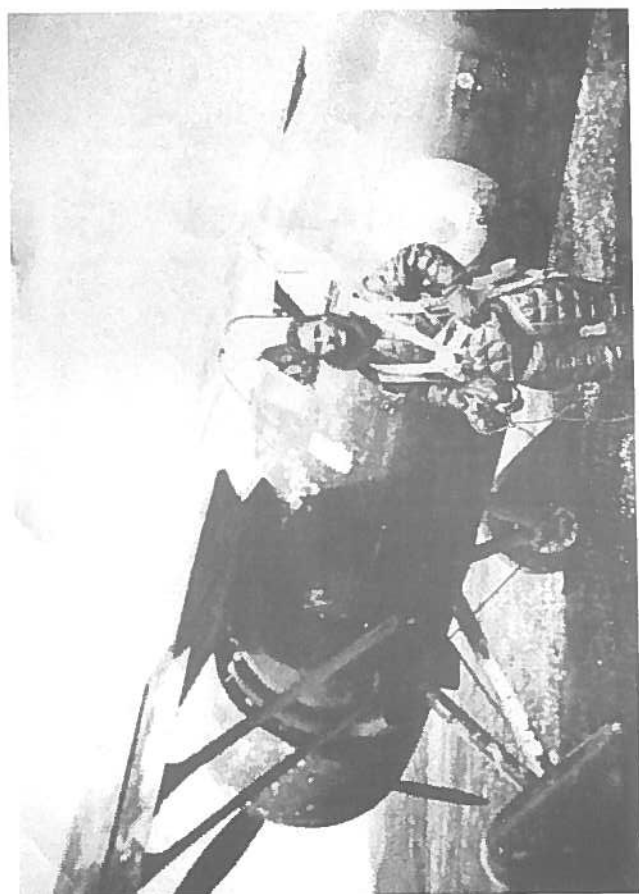
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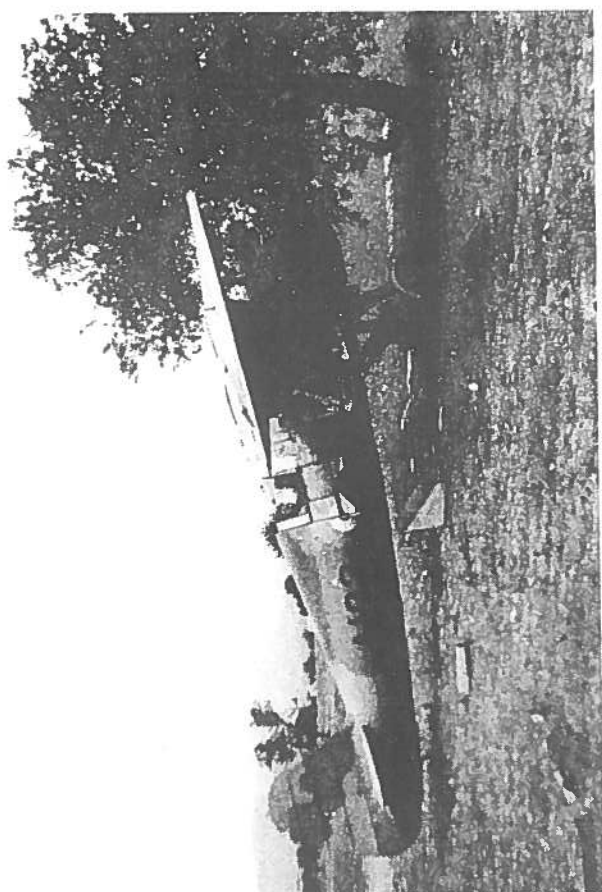
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SMALL AIR FORCES OBSERVER

The Journal of the Small Air Forces Clearing House

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COVER PHOTO: The cover photo goes to us from Jay Miller. Jay writes: "Attached is a photo that might prove of some interest. You're welcome to use it. I can send many more in hi-res if you need 'em. It's an S-92 and it belongs to the President of Turkmenistan. There are two and they've both been delivered via Antonov An-124. Both are equipped with showers (!). Color schemes are the same between the two. Mod work was done in Grand Prairie, Texas by Heritage Aviation. If you need serial numbers, etc. let me know."

Jay Miller (SAFCH #732), 612 Hasten Court, Ft. Worth, 76120, USA. E-mail aerofax@sbcglobal.net

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AUSTRALIA

AUSTRALIAN PLASTIC MODELLERS ASSOCIATION (APMA, PO Box 51, Strathfield, NSW 2135; 4 issues airmail A\$40. International payment is best handled via Paypal at iansharyn@bigpond.com.au). Web Site: www.apma.org.

2-06 (28 pages) "Algeria 1952-62 (Pt. 1): The French Air Force" 5 pages including table of available 1/72-scale kits and 11 side-view drawings [SIPA S.111A, Douglas AD-4N Skyraider, Douglas RB-26C Invader, Republic P-47D Thunderbolt (5), North American T-6G (3)]. "Modeling the SIPA Si 12" one page. "Odd Bods & Invaders: The story of 'Tokyo Rose'" 4 pages on the Mitsubishi Sally flown to Australia at the end of WW2 including 4 photos and 2 side-view drawings. "Building the MPM 'Sally' kit" one page. "River Monitors Pt. 2" one page on the heavily armed (two 88-mm, one 37 mm, & 4-barrel 20-mm) German river barge including scale drawings. "The Tucker Sno Cat" 10 pages on the Snowy Mountains Authority vehicles including 3 photos and 6 pages of scale drawings. "Improve your British military models with colours (Pt 2)" 3 pages including color mixes.

AUSTRIA

OFH NACHRICHTEN (Oesterreichische Flugzug Historiker, Pfenniggeldf 18/2/14, A-1160 Wien. Write for free sample.)

2/06 (40 pages) "Ing. Anton Fiala: Teil 2" 5 pages including 6 photos. "Flugzeuge auf Stangen" 4 pages including 12 photos of a/c on pillars in Austria. "Vickers Viscount OE-LAE" 3 pages including 9 photos and a table. Color photo: Austrian Draken in 'Dragon Knights' color scheme.

CANADA

RANDOM THOUGHTS (IPMS Canada, Box 626, Stn. B, Ottawa, Ontario K1P 5R7; 6 issues for US \$24.00 in US \$26.00 elsewhere).

29/6 (24 pages) "Building the 1/48 Hobbyscraft CT-114" 9 pages including 12 photos (2 in color). "CT-114 Tutor Reference Photographs" 6 pages with 12 photos.

FINLAND

FINNISH AIR FORCE SIG, c/o Nils R. Treichel, Gustav-Adolf-Str.16, 27404 Zeven, Germany. Entirely in English. No. 23 (10 pages)

IPMS-MALLARI (IPMS Finland, PL 798, 00101 Helsinki 10; 6 issues \$20.00, no check accepted due to the high redemption costs). Text in Finnish.

#162 2/2006 (32 pages) Nothing of small-air-force interest, but lots of color photos of models at Finnish model contests including one of a Finnish Buffalo in a log revetment.

SUOMEN

ILMAILUHISTORIALLINEN LEHTI (Pentti Manninen, Jakomaentie 8 b C 300, 00770 Helsinki. Subscription: Europe 26 euro, elsewhere 32 euro or 38 USD. Payment by International Postal Order or in cash notes; no cheques accepted because of high redemption rates). Each issue includes a 2-page English summary.

2/2006 (24 pages) "DH.100 and DH 115 Vampire in Finland: Part 2" 5 pages including 4 photos of Finns training in Great Britain and 4 side-view drawings of Vampire DH.100 in Finnish colors/

"Brewster Model 239 - Winter War aid from the USA" 6 pages including 8 photos and a table listing c/n. dates leaving USA and arriving in Finland, name of ferry pilot, and Finnish serial. "The auxiliary bombers of Winter War" 3 pages including 3 photos (DC-1 & Ju 52). "Bucker Bu 181 Bestmann tested by Finns in 1943" 3 pages including one photo and a 3-view scale drawing. "OH-TZB - Zlin 381" 2 pages including 5 photos. "Civil aircraft impressed by FinnAF in Oct 1939" 3 pages with 2 photos and a table listing type; register; mfg no; owner and home town; date and place of impression; pilot and unit; unit FinnAF; impression number and fate with FinnAF; and flying time with FinnAF.

FRANCE

AIR MAGAZINE, TMA, 75 rue Claude Decaen, 75012 Paris, France. Six issues a year. 35 euros in France, 41 euros in Europe, and 50 euros for the rest of the world. Payment by Visa, Eurocard, Mastercard. E-mail: airmagazine@wanadoo.fr.

No 32 Juin/Juillet 2006 (72 pages) "Dewoitine D.21 en Turquie" one page with 3 photos. "Un Sud-Américain a Paris" 4 pages including 7 photos and a 4-view scale drawing of the Hydavion Bathiat-Sanchez. "La 5B2 dans la guerre du Rif" 6 pages on French Farman F.60 in action in Algeria including a color painting of a pair of Farmans in actions and 15 photo (mostly aerial photos with only 3 showing the Farmans). "Le Focke-Achgelis Fa 223 Drache" 31 pages including 42 photos, a 2-page cutaway drawing, a 3 page 1/72-scale drawing, two 2-view color drawings, and 12 color side-view drawings [Luftwaffe (6), USAAF (1), RAF (1), France (1), Czechoslovakia (3)]. "Les Avions de Blake & Mortimer" 4 pages including 11 photos. [Ed: This one has me stumped. My French is not good enough to figure out what is going on.] "L'hélicoptère de Thomas Perry" 3 pages on an early 1920's helicopter including 2 photos. "Comte AC.1" one page with 2 photos. "Actualite Maquettes & Livres" 4 pages with reviews of 18 kits and 13 books.

No. 33 Aout/Sept 2006 (72 pages) "Arado Ar 79" 10 pages including 22 photos and 11 color side-view drawings (4 with top- and bottom-view drawings) [German civil (3), Luftwaffe (3), Hungarian (3), French (1), & Saar (1)]. [Ed: the latter, 'SL-AAP', may represent the ultimate in "small" air forces.] "Un Inventeur digne de Jules Verne" 4 pages on a helicopter patented by Peter Cooper Hewitt in 1919 including 4 patent drawings. "Metal flottant a Biscarosse" 4 pages on a recent show of seaplanes including 13 photos of the familiar (e.g. PBY) and the exotic (e.g. Do 24 TT). "Aigles sur l'Argentine" 24 pages on the 1Ae-24 Calquin twin-engine Mosquito replacement including 49 photos, a table listing the history of all 100 Calquins, one color 3-view, and 4 color side-view drawings (including one of an aircraft that participated in the September 1955 rebellion with the Argentine rounds over-painted in black and carrying the codes "MR" for *Movimiento Revolucionario* and the '+V' insignia for *Cristo vence*. [Ed: The latter is a very unique insignia for a model of the Calquin.] "Ször Atya' Le Chevalier Gyösz Lévy" 14 pages on Hungarian Ju 87 including 9 photos, a table listing the history of all Hungarian Ju 87, a color 3 view drawings (Ju 87D) [Ed: I'm still irritated that I got the colors on the horizontal tail of by 1/72-scale Hungarian Ju 87D the wrong way - the green should have been on the

outside!], and 8 color side-view drawings [Ju 87A (1), Ju 87B (2), & Ju 87D (5)]. "Actualite Maquettes & Livres" 3 pages with reviews of 10 kits and 13 books. [Ed: After a long wait, there are now two 1/72-scale Hudson kits (a MK I/II from MPM and a Mk IV/V from Italeri). There is also a 1/72-scale resin kit and book out for the exotic SE 100.]

AVIONS: Toute l'Aeronautique et son Histoire (Lela Presse, 29 rue Paul Bert, 62230 Outreau, France. 50 euro for 6 issues).

#152 Juillet/Aout 2006 (72 pages) "Bud Anderson" 15 pages including 29 photos, color cover painting, and 5 color side-view drawings [P-39 & P-51(4)]. "Le B-25 'Pat's Victorie'" 9 pages on the recovery of a B-25 including 30 photos of both the recovery operation and of RAF B-25s. "La chasse terrestre de la Marine Imperial Japonaise (Fin): Tatsumaki et Kamikaze" 12 pages including 25 photos and 4 color side-view drawings (Kawanishi NIK2). "Le convoi de dea avions de prise Italiens (1943-1944)" 6 pages including 19 photos. "Les Caproni 310 Norvegiens" 10 pages including 24 photos and 5 color side-view drawings. "Paul Montange et Spa 155" 10 pages including 36 photos. "Pionniers: Les avions Rossel-Peugeot" one page with 2 photos.

GERMANY

FLIEGER REVUE EXTRA (Verlag Fliegerrevue, Herrn Detlef Billig, Oranienamm 48, D-13469 Berlin. 4 issues per year, \$66 surface. Payment by check drawn on German bank)

#11 November 2005 (116 pages) "Flugsport in der DDR, Teil 2: Die Dominanz der Militärs" 30-page story of sports aviation in East Germany including maps, tables, and many photos of aircraft, personnel, etc., and 3 color side-view drawings [Yak-18 (2) & Zlin Z-42]. "Der Finnische Winterkroeg: David gegen Goliath" 22 pages including maps, tables, 47 photos, and 11 color side-view drawings [Soviet: I-15bis, R-5, SB-2, I-153, DB-3, I-16; Finnish: Gladiator (2), D.21 (2), G.50]. "Deutsche Forschungsfieger Von Wetterflug bis Fly-by-Wire" 23 pages including 45 photos and a 2-page color 3-view drawings (Dassault Falcon 20E-5). "Luftwaffen auf der Balkan, Teil 2: Bosnien-Herzegowina" 20 pages including maps, tables, 38 photos, two color 2-view drawings (Bosnian Super Cub & UTVA-75), and 7 color side-view drawings [Bosnia-Croatia Federation Mi-8, Mi-34 & UH-1 (2); Bosnia-Herzegowina Mi-8 (2), Krajina Military SA-341; Republic Srpska SA-341; "Deutsche Flieger in Südwestafrik: Flugpioniere in den Kolonien" 22 pages on German pioneer aviators in South West Africa including 20 photos and 2 color side-view drawings (Pfalz Doppeldecker & Aviatik P.14).

#12 February 2006 (116 pages) "Flugsport in der DDR, Teil 3: 'Vorwärts' und 'Dynamo'" 26 pages including lots of photos of East German gliders, aircraft, personnel, etc., and 2 color side-view drawings (Po-2 & Z-226). "Die türkische Luftwaffe im Zweiten Weltkrieg" 25 pages including 51 photos, tables, 8 color side-view drawings [Bregurt 19, Lysander, Blenheim V, Spitfire (2), Fw 190, MS.460, P-40C, "Deutsche Bordflieger zwischen den Weltkriegen" 30 pages on German ship-borne aircraft including 50 photos and a 2-page 3-view color drawing (He 60). "Die unsichtbaren Späher:Transporter als Luftspion" 14 pages including maps, tables, and 34 photos "Die

mazedonische Militärluftfahrt" 18 pages on the Macedonian Air Force including tables, 35 photos, and 5 color side-view drawings [Mi-8 (2), Mi-24 (2), & Su-25].

#13 May 2006 (116 pages) "Kranflug in der DDR: Geschichte eines Industriezweigs" 26 pages on East German flying cranes including 62 photos. "Geheime Helfer Arabische Luftwaffen 1973" 20 pages including 28 photos and ? color side-view drawings [Egypt Mirage 50; Morocco F-5A; Algeria MiG-21 (2) Su-7; Iraq Hunter, MiG-17 (3), MiG-21 (2), Mi-4]. "Meidagen 1940: Luftkrieg über Holland" a 30-page reprint of the SAFO series including maps, tables, 43 photos, and 8 color side-view drawings T.5, D.XXI, Bf 109, C.X, D8-8A, D.XVII, G.I, C.Vd] "Junkers in China: Frühe Luftfahrt im Reich der Mitte" 16 pages including "40 photos and 7 color side-view drawings [Kanton F 13W; Shantung F 13; Landvermessung W 33; Chiang Kai-shek Ju 52/3m; Nanking K 47 (2); Manchuko K 53] "Die Luftwaffe Serbiens und Montenegros: Teil I 1912-1945" 20 pages including 62 photos and 5 color side-view drawings [Blériot XI, Do 17K, Bf 109E, IK-3, Blenheim I].

MITTEILUNGEN (IPMS Germany, Bergengruenstrass 5-7, D-1000 Berlin 38; 12 issues DM 60.00 Europe, DM 65.00 USA, DM 70.00 Japan, DM 75.00 Australia). 2/2006 (44 pages) Nothing of small-air-force interest.

ITALY

JP-4 Mensile di Aeronautica (JP-4, Via XX Settembre 60, 50129 Firenze; L 27.000 Europe, L 30.000 elsewhere).

Giugno 2006 (100 pages) Color photo: Hong Kong Super Puma. "EH101 Canadesi" 4 pages including 9 photos. "Warrior Irlandesi" 3 pages including 6 photos of Irish SF-260). "Incidenti: Militari" 1½ pages including 4 photos.

Luglio 2006 (100 pages) Color photos: Indonesian F-16 & Su-27; Dutch P-3C, and Romanian Lancer (MiG-21). "Spring Flag 2006" 2 pages including 6 photos (Israeli F-15 and Italian Tornado & EH 101). "Incidenti: Militari" 3 pages including 6 photos (Greek RF-4E).

Agosto 2006 (100 pages) "Il Tuono di Israele" 4 pages including 6 photos (F-15I). "Incidenti: Militari" 3 pages including 6 photos (Greek RF-4E). 1/2 page including 2 photos (South Korean F-15K).

NETHERLANDS

MODELBOUW IN PLASTIC (IPMS-Nederland, c/o Luuk Boerman, Kerkstraat 2, 2471 AP Zwammerdam. E-mail: lucasb@normadblend.nl).

2/2006 (40 pages) "De Vickers Supermarine Seafang F.32 van Silver Cloud" 4 pages on building the 1/48-scale Seafang including 7 photos of the model in various stages of construction. "De B-25 Mitchell van Accurate Minatures" 6 pages including 10 photos of the completed model "Avro Lancaster B MkI/III" 4 pages including 6 photos comparing the parts from the 1/72-scale Airfix and Hasegawa kits. "De mijnenjagers van de Alkmaar-klasse: Tripartite-Class Minehunter, l'Arsenal 1/350" 6 pages on building a neat-looking mine-hunting ship including 9 photos of the completed model and the real thing.

POLAND

LOTNICTWO (Krystof Zalewski, ul Grochowska 306/310, pok. 206, 03-840 Warszawa. E-mail: kz@magnum-x.pl.)

6-06 (68 pages) Color photos: Polish M-28R Bryza, Mi-14PL, TS-11 Iskra, PZL-130 Orlik, Yak-40, & C-295M. "Lockheed Martin F-16C/D Block 52+" 8 pages including table listing number and type sold to all customers [Egypt (220), Singapore (70), USAF (2429), Bahrain (22), Belgium (160), Chile (28), Denmark (77), Greece (140), Holland (213), Indonesia (12), Jordan (36), South Korea (180), Norway (74), Oman (12), Pakistan (40), Poland (48), Portugal (45), USN (40), Thailand (59), Taiwan (150), Turkey (240), Venezuela (24), Italy (37), & UAR (80); a color 2-view drawing (Poland), and 9 photos (Poland, Jordan, Oman, Chile, & Greece). [Ed: How many countries do you have represented in your collection of F-16 models?] "Sily powietrzne Chorwacji" 6 pages on the current Croatian AF including AoB and 13 photos (Mi-8MTW, MiG-21bis, SOKO G-2 Galeb, Bell 206B, Air Tractor AT-820F, Pilatus PC-9, UTVA-75, Canadair CL-415T, Mi-24W, McDonnell Douglas MD500, Piper PA-31P Navajo, & Antonov An-32B). "35. Piłk Lotnictwa Bombowego" 8 pages including 17 photos and 2 color side-view drawings of Polish Tu-2 and Il-28. "Pogoda była najgorszym wrogiem (cz.II)" 4 pages including 10 photos and 2 color side-view drawings of Polish B-24 Liberators. 7-06 (72 pages) "Pierwszy dwumiejscowy F-16 dla Polski w powietrzu" one page with 4 photos of Polish F-16. "Lockheed Martin F-22 Raptor (cz.II)" 8 pages including 11 photos and a 4-view tone drawing. "Sily Powietrzne Portugalii" 3 pages including 8 photos (EH-101, F-16, C-130, CASA C-212, Cessna 337, P-3 Orion, Epsilon, & Alpha Jet). "Bombowiec nurkujący Aichi D3A (cz.I)" 6 pages including 8 photos, 3 color side-view drawings, and a scale 4-view drawing. "FM-1 Airacuda" 4 pages including 7 photos and a small multi-view drawing. "Polacy na Jakach-27R" 5 pages including 10 photos and a color side-view drawing.

USA

WWI AERO (15 Crescent Rd., Poughkeepsie, NY 12601; 4 issues \$42.00 USA or \$47.00 overseas).

#192 May 2006 (144 pages) "The Flying Machines of Charles K. Hamilton" 17 pages including 39 photos. "Henri Fabre and The Birth of the Flying Boat" 7 pages including 7 photos. "DH-4B and DH-4M" 7 pages including 8 photos. "Grahame-White, Swamp Cypress and the DH6" 7 pages including 5 photos. "The Curtiss OX-5" 9 pages including drawings. "The history of my great-uncle Hugh Rockwell's twin-engine and monocoque monoplane" 6 pages including 6 photos and scale 4-view drawing. "Aircraft" 4 pages with 12 photos. "Time Tarmac" 6 pages including 13 photos. "Drawings" 5 pages. "Museums/Organizations" 6 pages including 16 photos. "Models" 9 pages including 28 photos. "Letters" 5 pages. "Publications" 14 pages.

#193 Aug 2006 (144 pages) "1911Coanda: Twin-Engine Monoplane or Biplane?" 3 pages including 5 photos and a 3-view drawing. "J Walter Christie: Two Airframes and Two Engines" 8 pages including 4 photos. [Ed: Christie is better known for his tracked armored vehicles.] "The Castle Door, The Mooring Pylons and the Transaereo, Pt. 1" 11 pages including 9 photos and cut-a-way drawings of the giant 9-wing Caproni flying boat. The cover is a double-page 'what if' painting of the Caproni in

flight. "The Gallaudet Story Part 14A: The Model D-2 for the Army" 14 pages, 6 photos, and a 4-page 3-view scale drawing. "Early Aerofoils: Part 1" 10 pages. "Times Tarmac" 4 pages including 12 photos and a drawing of the enigmatic Scott multi-disc flying(?) machine. "Assembling the Jenny" 7-page reprint of original assembly instruction book including diagrams. "Museums and Organizations" 14 pages including 21 photos. "Drawings" 4 pages (Pfalz D.XII, Hydroaerocraft Corp's. Hydroaerocraft. & Curtiss restored Langley Aerodrome). "Models" 10 pages including 50 photos. "Publications" 11 pages. "Letters" 5 pages.

SKYWAYS: The Journal of the Airplane 1920-1940 (15 Crescent Rd., Poughkeepsie, NY 12601; 4 issues \$42.00 USA or \$47.00 overseas.).

#78 April 2006 (80 pages) "Italian Interlude: A 1929 Flying Boat Shuttle" 3 pages including 4 photos (Savoia Marchetti S.55P). "The Herrick HV-2A 'Convertaplane'" 7 pages including 11 photos and a 3-view scale drawing. "A Tour of the Historic Aircraft Restoration Museum" 9 pages including 19 photos. "The Stinson Model A Trimotor Airliner: Part 4" 9 pages including 4 photos, 2 side-view drawings, and a 3-page table listing the history of each individual Model A. "1926 Schneider Trophy Race, Hampton Road, Virginia" 5 pages including 7 photos and a 2-page color cover painting. "Cockpits: Boeing 40-A Mailplane" 2 pages including 2 photos. "QED: The Last of the Great Gee Bees" 13 pages including 20 photos (including 5 of Mexico's *Conquistador del Cielo*) and 2 pages of scale drawings. "ID UNK (Identification Unknown)" 2 pages including 6 photos. "From the Members" 4 pages. "Models" 2 pages including 3 photos. "Skyway Reviews" 3 pages.

#79 Jul. 2006 (80 pages) "The Navy's No-Win Design 106 Competition: The Amphibian Land/Ship-Based Scouts" 17 pages including 5 photos and a 2-1/2 page scale multi-view drawing (Great lakes XSG-1); 6 photos and a 2-1/2 page scale multi-view drawing (Sikorsky XSS-2; and 6 photos and a 2 page scale multi-view drawing (Loening XS2L-1). "The Autogyro: An Inherently Safe Aircraft Neglected Since 1940" 7 pages including 5 photos (Kelletts & Pitcairns). "A Tour of the Historic Aircraft Restoration Museum: Part 2" 12 pages including 20 photos (one of a Shavrov Sh-2). "Aviation Movie Publicity Stills: Republic's Flying Wings" 3 pages with 6 photos of a/c mockups used in Republic Picture's 'cliff-hanger' serials. "Cockpits: Army Fairchild YF-1 Photo Plane" 2 pages with 4 photos (one of the cockpit & 3 of the aircraft). "Details: U.S. Navy F-5L Flying Boat" 7 pages including 16 photos (3 of the aircraft & 13 of construction details) and a 3-view scale drawing. "A Charter to Chicago: FDR's Precedent-Setting Flight" 6 pages including 2 photos (Ford Tri-Motor). "Stratoliner Model Restoration" 6 pages including 10 photos. "Models" 2 pages including 2 photos. "Skyways Reviews" 2 pages.

ESM 72 (Model-Aire International, 38 Prince Royal Passage, Corte Madera, CA 94925. E-mail: maiesm72@aol.com. Web site: members.aol/Maiesm72/maiwebpg.html.)

Quarterly. \$25.00 for four-issue volume. \$30.00 outside the USA. Back issues available at same price per volume.

Vol. 9, No. 2 (pages 61-114) "Aircraft by Kit Manufacturer" 7 pages TCI to Two-Nine-Nine Models. All the usual updates.

The Hellenic PZL P.24 Fighters -- Part 2

Sid Napier

Camouflage & Markings

The EVA's 36 PZL P.24's were delivered with an overall natural metal finish, except for the portside oil coolers, which were black. Large blue/white/blue roundels of equal size were painted on and under the wings outboard of the wing strut attachment points, and blue/white/blue vertical stripes were painted on the rudder. The blue was a relatively pale shade. The PZL badge, 'P.24' and weight data were painted in black on the fin, and the individual aircraft code, a 'Delta' followed by a dot and three-digit number, was painted in black on the fuselage sides. Head-on photos, e.g. those of Delta 115 and 116, show bare metal propeller blades, but the backs were almost certainly black.

Camouflage schemes had been applied to all the P.24's by the spring of 1940. Unfortunately, no specific EVA directives survived World War 2, so no official descriptions of the colours and patterns used exist. The only information available is based on WW2 EVA personnel's memories and the analysis of photos mostly (all?) reproduced from old prints, not negatives, with a resultant loss of detail.

Andrzej Glass states that "For camouflage purposes the P.24's had their upper surfaces painted in a three-color scheme", but he does not illustrate such a scheme with a photo or profile. Skulski offers a profile of Delta 115 wearing a dark green/two browns scheme in Pod Lupa 15 as does Stavros Verras in NEA 1/99. In Profile Publications No. 170 Jerzy B. Cynk depicts Delta 126 wearing a three-colour scheme (applied even on the under surface of the fuselage!) comprising mainly dark green and chocolate brown with patches of light earth, and with markings similar to those worn with a natural metal finish, including rudder stripes. Skulski describes this Delta 126 scheme as "hypothetical".

The other profiles provided by Glass and Skulski depict two-colour, high-contrast schemes based on dark green and a very pale brown that can be described as ochre or light earth, the actual shades depicted by Glass varying from sand to hazel, probably due to the printing process/paper since the under surface blue is too dark in two profiles (Delta 112 and 129) and the blue of the roundels also varies. Most of the profiles, whether offered by Glass, Skulski, Verras or other sources, show the under surfaces painted a blue-grey very similar to the Luftwaffe's RLM 65 Hellblau.

Photos of Delta 102, 109 and 112 taken in bright sunshine after capture and offered by Glass show two-colour upper surface camouflage featuring strongly contrasting colours. The same contrast is apparent in photos of Delta 129, and of a wreck provided by Skulski. As a result, the generally received opinion is that large patches of dark green and a very pale brown applied on a roughly 50:50 basis in varying, non-standard patterns over blue-grey under surfaces was the camouflage worn by all EVA P.24's.

However, photos provide evidence that differing colour schemes were worn concurrently in 1940. Stavros Verras reports that one such photo in the Hellenic Air Force archives at Tatoi shows P.24's and Blenheims assembled at an airport in summer

1940. Taken at some distance and from behind the P.24's, the photo shows these parked so closely that their individual camouflage schemes almost blend into one another, but some with three-colour schemes are easily discernible although obviously in the minority. There are roundels on all the wings, but of differing sizes!

Other photos show 11 P.24F's and P.24G's wearing differing colour schemes – but no wing roundels! -- lined up in front of a row of 3 Mira Henschel Hs 126K-6's still wearing RLM 61/62/63 splinter camouflage. Only two machines exhibit the strong colour contrast associated with the dark green/pale brown scheme; the other nine show muted colour contrast rather like that of RAF camouflage.

Verras has studied various prints of the line-up photos and believes that EVA P.24's wore upper surface camouflage based on dark green plus one or two shades of brown, i.e. a very pale brown (or ochre) and a dark brown, here for convenience called "light earth" and "dark earth" although not identical with the RAF colours of those names. He has also found indications that there were four different camouflage schemes. He notes that, if dark green is accepted as being the standard colour used on every P.24, then patches of light earth are visible on the first and fourth machines in the 11-machine line-up, dark earth instead of light earth on the second and third, three-colour schemes on the fifth, sixth and seventh, and a kind of mottle scheme on those farther back. The under surfaces of all the P.24's are a pale colour, either blue or grey.

Verras depicts the four different schemes with profiles (port sides only) in NEA 1/99, pages 20/21. Scheme 1 shows Delta 129 (a P.24F) wearing dark green/light earth over light blue-grey; Scheme 2, Delta 132 (also a P.24F) with dark green/dark earth over light blue-grey; and Scheme 3, Delta 115 (a P.24G) with dark green/dark earth/light earth over light blue-grey. Scheme 4 depicts Delta 113 (119?) with a scheme Verras describes as "a rather rare dark green and dark earth mottle pattern", adding that the "contrast between the two colours in the photo is minimum and it can be mistaken for a one-colour example". The wing patterns for Schemes 1, 2 and 4 are shown on page 24, the alternative wing pattern (ailerons from another P.24) for Delta 112 on page 25.

Verras has pointed out (to the author), that three-colour schemes were used by the Hellenic Army and by neighbouring countries' armed forces, e.g. the Yugoslav Army Air Force. Moreover, the three-colour schemes worn by the Potez 633B2 bombers and Bloch MB 151 fighters purchased from France may have prompted the experimental addition of a third colour to an original two-colour scheme on some P.24's. The use of dark earth instead of light earth or vice versa may, on the other hand, have been due solely to the shade of brown paint available.

The extent to which the three-colour or dark green/dark earth schemes had been phased out or were in concurrent use with the dark green/light earth scheme during hostilities is not clear, although the wartime photos of Delta 117 with its mottle fuselage finish would seem to confirm they were. But then why

do photos of damaged/captured P.24's all show the dark green/light earth finish?

Theoretically, camouflage schemes may have been Mira-specific and the photos could be of one particular Mira's P.24's taken at one particular airfield, possibly 22 Mira's (and 23 Mira's?) last machines at Argos. However, both 22 and 23 Mira were using ex-21 Mira P.24's from December 1940, which would mean either that these also wore the dark green/light earth scheme or that none of them got to Argos. Also, since Beldecos states that 23 Mira had P.24F's, cannon-armed P.24's would all have worn the same colours, yet this was not the case. The first fighter in the 11-machine line-up is the P.24F Delta 129 wearing dark green/light earth camouflage, but the P.24F next to it is Delta 132 wearing the dark green/dark earth scheme!

Thus only two explanations appear possible for the lack of photos showing damaged/captured P.24's wearing three-colour or dark green/dark earth camouflage: The first is that, by pure chance, either only machines wearing the dark green/light earth scheme were photographed or only photos of such machines were published because they were more photogenic. The second is that, sometime in autumn 1940, the EVA decided that all its P.24's should wear dark green/light earth, that all but a very few had been repainted by the time war broke out, and these few ended up as uninteresting wrecks.

As regards camouflage patterns it should be borne in mind that, due to extensive parts cannibalisation, many individual P.24's no longer sported their original camouflage patterns (or overall colour combinations?) by the end of hostilities. Delta 112, for example, finished up with ailerons from another P.24 and Delta 117 with complete wings from another fighter. Photos, too, can be a problem. Skulski's photo of Delta 112 in makes it look as though the wings and fuselage were painted in two different shades of light earth, but the same photo of Delta 112 provided by Glass shows the light earth was the same shade on wings and fuselage.

The spinner and reduction gear fairing appear to have been painted a single camouflage colour in most (all?) cases. Glass depicts these painted light earth on Delta 102, 109, 112 and 129 (?). Skulski depicts both Delta 115 and 129 (?) with a dark green spinner and reduction gear fairing, but agrees with Glass that Delta 112 had these painted light earth. Verras illustrates Delta 113, 115, 129 (?) and 132 with dark green spinners and reduction gear fairings.

Photos show camouflaged P.24s with semi-gloss black propeller blades with and without yellow tips. Glass's profiles of Delta 112 and 129 show plain black propeller blades, but his profiles of Delta 102 and 109 show front and back (?) bare metal blades. Verras depicts only black blades with yellow tips.

Markings were modified when camouflage was applied. The Tatoi archives photo confirms that roundels were initially still worn on the wings, but that sizes differed. So it is possible that even rudder stripes may, repeat may, initially have been

correct for some machines. Later photos show that the roundels on top and under the wings had been painted over, as had the rudder stripes, the 'P.24' and weight data on the fin, but that roundels had been painted on the fuselage sides half under or just aft of the cockpit, e.g. as on Delta 102 and 112 or on Delta 109 and 129. After hostilities had commenced and Greek anti-aircraft gunners had repeatedly fired on EVA aircraft, small roundels were painted on the undersides of the wings. A photo of a wreck shows these worn under the wingtip and about half the chord in diameter, but Glass also shows slightly larger underwing roundels painted farther inboard where the large roundels were worn prewar, e.g. on Delta 112. He depicts the roundels worn by Delta 102 and 109 applied in the same rather pale blue as on bare metal surfaces, but those applied on Delta 112 and 129 with larger centres and a darker blue. Verras also shows darker blue roundels on the fuselage sides, as does Skulski. The size of the roundel centre appears to have varied; it was rather small on Delta 109.

The code, aft of the roundel, was again applied in black except on Delta 112, where it was white. The 'Delta' now had a somewhat narrower base, there was no dot, and the '1' was replaced by a simple bar.

The small, red emblem on the port side of Delta 102 has been identified in various publications as a "crab" or "scorpion". The photos provided by Glass and Skulski show it was a spider.

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Captions for photos on page 38.

1. The pilot of the PZL P.24 Delta 117 with his machine. Note the difference between the mottled camouflage colours on the fuselage and the patches of colour on the wings which indicate they were from another, cannibalized, P.24. Note also the wheel fairings and the pilot's quilted overalls.

2. The starboard side of Delta 102. Note the open, folded-down (and damaged) canopy hood. The lines visible on the fuselage under the hood appear to be the legs of the 'red spider' emblem clearly visible on the port-side photo. (Tomasz J. Kopanski)

3. Delta 109, a P.24G. Note the absence of an underwing roundel, the undersized centre of the fuselage roundel, the yellow tips of the propeller blades, and what looks like a difference in colour between the spinner and reduction-gear fairing. The side panel of the closed canopy hood is open. (Tomasz J. Kopanski)

4. The wreck of a P.24 on a major Greek airfield. Note the small underwing roundel introduced in the winter of 1940/41, the wheel fairings, and apparently different colours of the spinner and reduction-gear fairing. The single machine gun and damaged cannon fairing show this is a P.24F. (Tomasz J. Kopanski)

Modelling a Greek PZL P-24s in 1/72 Scale

The best reference material is 'PZL P.24A-G' authored by Andrzej Glass and published by Kagero. Glass offers parallel Polish and English texts and captions including a general history of the aircraft,

eight pages of 1/48th scale plans plus eight pages of detail drawings in various scales, many photos and 11 pages of colour profiles. An alternative would be Pod Lupa 15 by Przemyslaw Skulski which offers a Polish

text, English summary and dual language captions, photos, including black/white and colour detail shots of a Turkish-built P.24G, good 1/72nd scale plans of all subtypes and 1/48th scale plans of the P.24F/G, plus reviews

and photos of models built using older kits. An English translation of the Pod Lupa 15 text, photos and line drawings appeared in the September 2004 issue of Scale Aviation Modeller International.

For a 1/48th scale model the obvious choice of kit is a Mirage PZL P.24F or P.24G, either of which offers enough cockpit and engine detail to satisfy all but the superdetail enthusiast. The older, maybe still available Warrior Model resin kit is described as "good quality" in Pod Lupa 15.

In 1/72nd scale there are the recently released Broplan P.24F and P.24G or the older Arthur Resin, Modelland vacuform, Raciborz and S-Model resin kits, the latter being described in Pod Lupa 15 as "the best P.24 in 1:72 scale". The kits available to the author were the Skala 1:72 P.24F/G and the Broplan PZL P.24G.

Skala 1:72 PZL P.24F/G -- This has been around for some time and the tooling used to produce it is worn. It agrees with the 'Warpaint' drawings by Colin A. Owers published in Aviation News, which differ in some respects from those in Pod Lupa 15, e.g. the cockpit is 1.5 mm farther aft, the oil coolers are larger and the fin has a peculiar little 'hump'. Making up the model entails the following after deflashing all the parts.

Fuselage/cockpit -- The fuselage halves (Parts 9, 10) are not symmetrical with the wing strut and landing gear attachment points lower down on one side, an error which needs attention if the model is to stand straight and the struts are to be at the same angle on both sides when viewed head-on. The two rows of cooling slots on each side of the front fuselage are only faintly visible if at all. So consult the plans, make two deep, 0.5 mm wide parallel sawcuts, fill the spaces between the 1.5 mm long slots-to-be with strips of plastic card then tidy up with wet'n'dry.

To make the cockpit truss, assemble Parts 1 thru 7 on a level surface, discarding Part 2 and using thin rod or stretched sprue to make an in-scale control column. Cut away the truss positioning lugs behind the headrest bulkhead and the corners of the instrument panel; the back of the seat should be level with the bulkhead and the tops of the truss level with the cockpit sides. Sand the sides of the cockpit truss (Parts 6,7) until it fits in the fuselage halves. Now paint the cockpit interior and truss, then cement the truss to one fuselage half and assemble the fuselage. Add the horizontal 'V' strut of the truss. Attach the two oil coolers (Parts 26,27) to the port fuselage side, but note that the base of the smaller should be 1.0 mm higher up than that of the larger and that gaps around both need to be filled. The round bottom of the jettisonable fuel tank in the fuselage belly is hardly discernable. Cut a 10 mm disk of 0.125 mm card, cement it in place, scribe round it, then sand to disk down practically level and add a

narrow strip of 0.125 mm card along the centre line. Only one photo shows a pitot tube on the starboard side, so crudely moulded Part 43 can be discarded. Deflash the canopy (Part 23) and dry fit.

Wings -- Use a template to deflash Part 19 as the location of the injection gates and flash make it difficult to discern the contours of the trailing edges, especially around the cockpit cutout. The ailerons are longer than shown by the Pod Lupa plans, but end at the second rib inboard from the wingtip, which is correct. The spent cartridge ejection chute fairings are badly moulded and too big, so make replacements from a strip of 1.25 mm card laminate. If modelling a P.24F, discard the cannon fairings provided (Parts 45, 46), refer to the plans and make replacements from 2.5 mm card laminate. Attach the fairings to the wings after sanding off the part of the wing panel joint under each fairing. Mate the wings to the fuselage, filling and sanding any gaps. Paint the oil coolers and the area around them, then attach the wing struts. Make stub aerial attachment masts for the outer wing panels and a replacement 'L' pitot tube for the starboard wing underside (Part 44 is hopelessly overscale).

Tail assembly -- Correct the shape of the top of the fin, check the rudder for fit (slightly round the hinge line so it can be attached at an angle), cut away the top millimetre of the trim tab, shape and attach scraps of plastic to represent the tail light fairing. Insert a short piece of steel wire to represent the aerial attachment post. Attach the one-piece tailplane assembly (Part 20) after levelling the sides of the slot provided, fill and sand the gaps in the joint.

Landing gear -- Due to the asymmetry of the fuselage halves, the 'V' struts of the main landing gear (Parts 35, 36) have to be attached higher on the port side and slightly lower on the starboard side to ensure the model stands level. Allow the V-strut/fuselage joints to partly set, put the axle ends of the struts 32 mm apart on the adhesive side of a strip of masking tape and equal-height supports under the wing tips, then leave everything to set. Fill the dimples under the port fuselage/strut attachment points. Drill 0.5 mm holes in the fuselage next to the front struts and in the inboard sides of the axles. Fit lengths of 0.3 mm steel wire to represent the shock absorber cables and impart needed strength (use epoxy or cyanoacrylate adhesive). The wheels (Parts 34) are poorly moulded and only 1.5 mm wide instead of 2.25 mm, while the wheel fairings (Parts 30, 31, 32, 33) are badly underscale. Fit either suitable 10.0 mm diameter wheels from the spares box or the one-piece wheel/fairing parts from the Broplan P.24G kit. Cut away the two front tailwheel struts and replace them with thin stretched sprue after filing the rear strut to shape. Make a new 'shoe' from 0.25 mm card and attach.

Engine/cowling/propeller -- The instruction sheet is misleading. Assemble the parts in the following sequence from the rear: 15, 14, 12, 13, 11. Note that there should be two cylinders at the top of the front row, that the 'V's of Part 12 attach to the front cylinders and those of Part 13 go between them. Part 11, the reduction gear fairing, is a very prominent feature of the real engine, so the cooling slots require deflashing. The tops of some cylinders need to be sanded down to fit the engine unit in the cowling (Part 17), on which the panel assembly joints have to be scribed. The one-piece propeller/spinner (Part 16) and retainer ring (Part 18) fit nicely. The exhaust manifolds (Parts 24, 25) should fit in the rear of the cowling so that their tops are only about 1.0 - 1.5 mm apart while the exhaust stubs should be level with the angle formed by the wing and landing gear struts when viewed head-on. To achieve this configuration the tops of Parts 24 and 25 have to be lengthened with strips of card. The space between the tops of the exhaust manifolds should be covered by the tip of a triangular, perforated wing leading edge panel that has to be made from 0.25 mm card. When attaching the engine/cowling/propeller sub-assembly to the fuselage, a piece of scrap plastic may have to be cemented to the fuselage face to prevent the unit from tilting upwards or sideways. Discard Part 29, the carburettor air intake, and make a replacement from a piece of 3.0 x 4.0 mm scrap or card laminate, facing the intake with scored 0.125 mm card and gently rounding sharp edges.

Broplan PZL P.24G -- This is obviously based on Marek Rys' scale drawings in Pod Lupa 15 and the parts need no correcting. The cockpit offers sidewall detail in lieu of a truss, a floor, rudder pedals, seat, control column, instrument panel with some raised dials, headrest panel, truss-to-instrument panel 'V' strut, and two vacuformed canopies.

Unfortunately, the tooling used to produce the kit parts does not do justice to what must have been a good master model. There was so much flash that it was difficult to clean up some of the parts and there were sink marks and surface ripple. Also, all the parts were moulded in a dark green plastic shot through with streaks of light blue and speckled with silver which was not great fun to work with, especially in artificial light.

Assembly as illustrated by the instruction sheet poses no real problems, but does call for a few comments/suggestions.

Fuselage/cockpit -- Once deflashed, all the parts fit together with only minor adjustments. The rudder is moulded as a piece of the starboard fuselage half (Part 1), but could be cut off and attached at an angle. The 'V' strut in the cockpit (Part 9) is best replaced with thin stretched sprue. The instruction sheet shows only one port side oil cooler, but there have to be two and these are

provided. The round panel in the fuselage belly is not scribed. Proceed as for the Skala 1:72 kit.

Wings – Assemble Parts 12, 13, 14 and 15 as shown. Fill and sand all sink holes (they were particularly bad in Part 14 around the aileron edges). Attach the wings to the fuselage, then fill and sand the gaps around the join, both on top and on the sides. Paint the oil cooler area, then attach the wing struts, using aerofoil section strip instead of the kit parts if necessary. As with the Skala 1:72 kit, the triangular, perforated wing centre panel is not provided and has to be added.

Tail – The tailplanes (Parts 16, 17) should be fitted so that the elevator hinge lines are in line and at right angles to the fuselage centre line. When this is done the leading edge of one tailplane will be farther forward than that of the other whose trailing edge will be farther aft. Either fill and rescribe one elevator hinge line or sand back the projecting leading/trailing edges.

Landing gear – The main gear 'V' struts are frail and the strut/fuselage attachment points are not very good. Use 0.3 mm steel wire as shock absorber cables to ensure the model stands level and will not collapse. The axles should be 32 mm apart. Check the wheels (Parts 29) for moulding flaws, and thin down the axles to fit. Deal with the tailskid as recommended for the Skala 1:72 kit.

Engine/cowling/propeller – The three cowling parts (24, 25, 26) fit together easily but require scribing. The two rows of cylinders (Parts 20, 21) also fit together easily but need some filing to fit in the cowling. However, nothing is provided to represent the maze of cowling support struts, pushrods, etc. visible in head-on views of the real aircraft. An easy solution is to drill a pair of 0.5 mm holes in front of the upper six front cylinders and one hole each side of the bottom cylinder, then use fuse wire to make six 'V's and two straight lengths which can be anchored in the engine case with epoxy (see Glass, Sheet 07, fig.01). The reduction gear fairing (Part 23) is a solid piece of plastic with just a hole for a propeller shaft (not provided) and mere notches to represent the cooling slots. So hollow out Part 23, drill 0.5 mm holes where the slots should start and end, and finish with a file. Drill out the hub of the rather frail propeller (Part 36) and fit a section of thin rod as a shaft, after which the spinner (Part 37) can be attached. Insert sections of tube in Part 23 to provide a bearing and retainer ring. The exhaust manifolds and stubs are moulded as a single, ring-shaped part (22) which turned out to be of lesser diameter than the interior of the cowling and could not be cemented in place until cut open at the bottom and forced apart. The carburettor air intake (Part 35) poses no problems.

Which kit? Referring to photos and the plans in Pod Lupa 15 as a yardstick, the

Broplan P.24G more accurately depicts the real aircraft while the Skala 1:72 kit exhibits inaccuracies that can be corrected and offers more cockpit and engine detail. The Skala kit is produced using worn tooling, flash is a problem with both. Cross-kitting is a tempting approach, i.e. discard the Broplan engine/cowling/propeller assembly and use that of the Skala kit.

Painting

Cockpit -- Paint the instrument panel Humbrol H32 Dark Grey or H33 Matt Black and represent the instruments with round blobs of H21 Gloss Black. Paint the seat padding H62 Leather, the control column grip H33 Matt Black with an H60 Scarlet top, and all the rest of the cockpit interior H27001 Matt Aluminium.

Engine/propeller -- Photos show the Gnome-Rhone 14N-07 as a very dark engine, so paint the cylinders and case H53 Gun Metal (or use several washes of grey and brown) but Skala Parts 12 and 13 H27001 Matt Aluminium so they will show. Leave added fuse wire detail as is. Refer to the photo or colour profile selected and paint the reduction gear housing and spinner the appropriate upper surface camouflage colour, the propeller blades H85 Coal Black with 2.0 mm H24 Trainer Yellow tips.

Airframe -- The P.24s were delivered wearing a natural metal finish, so overall H27001 Matt Aluminium would be appropriate.

For camouflage schemes Stavros Verras suggests, in NEA 1/99, using the following Humbrol enamels:

Dark green – H75 Matt Bronze Green or H116 Matt U.S. Dark Green

Ochre – Either H93 Matt Desert Yellow or H94 Matt Brown, or a 50:50 mix of both.

Light earth – H119 Light Earth

Dark Earth – H186 Matt Brown or H133 Satin Brown

Blue-grey – H65 Matt Aircraft Blue

Light grey – H87 Matt Steel Grey

Mirage have consulted Verras and taken some of his advice. For models of Delta 106 and 129 their instruction sheet shows H93/94, H75 or H116, but H65/H87 for under surfaces and H186/H119 for Dark Brown, the “/” apparently recommending a 50:50 (?) mix.

Unfortunately, Mirage have got the colour scheme for Delta 129 wrong: they make it Green/Dark Brown although every photo of this aircraft shows it wearing the high-contrast Dark Green/Light Earth scheme! But they show Dark Green/Light Earth for Delta 106, so presumably there was a mix-up and the Green/Dark Brown camouflage was intended for a model of this aircraft.

Having previously painted a model of a Henschel Hs 126K-6 using X115 FS 14097 USMC Field Green, X808 RAL 8020 Afrika Korps Tan Yellow and X602 Russian Su 27 Flanker Light Blue for the dark green/light

earth/blue-grey scheme, I decided to be consistent and again used these enamels when finishing a model of Delta 109.

For a model of the P.24F Delta 106, H75 and H186 were used as suggested by Verras, but X602 was again used for the under surfaces.

Decalling

The Skala 1:72 and Broplan decal sheets both provide large wing roundels for a natural metal finish P.24F or P.24G and small fuselage roundels for a camouflaged P.24. Neither kit provides small underwing roundels for a model of a P.24 wearing full wartime markings. Plastimodellismo Modelling Supplies sheets provide wing and fuselage roundels of appropriate prewar and wartime sizes. These used to be available in pale or medium blue, but apparently now only offer medium or a very dark blue; the latter shade is incorrect for a P.24. Going by A. Glass' profiles and photos, in 1/72 scale the diameters for underwing wartime roundels would be about 10.0 mm for the wingtips and about 12.0 mm farther inboard. No rudder stripes are needed.

The Skala 1:72 codes Delta 102 and Delta 126 would be correct for a natural metal finish except that they lack the dot between the letter and the number. If used for a camouflaged machine, the “i” should be converted into plain bar and the characters should be farther apart. The red emblem for Delta 102 is a scorpion, not a spider, and the kill marks are suspect, so both can be discarded. The 'P-24' and PZL badges for the fin should have a dot, not a hyphen, between the 'P' and '24'.

The Broplan sheet codes Delta 116 for a natural metal finish machine, black Delta 102 and Delta 129 or white Delta 112 for camouflaged P.24's are all correct as regards size and font, as is the 'red spider' emblem for Delta 102.

The very good Techmod decal sheet that comes with A. Glass' 'PZL P.24A-G' provides no roundels or rudder stripes, but civil registrations for prototypes and codes, stencils and inscriptions for Greek, Bulgarian and Turkish P.24's in both 1/72 and 1/48 scale. The markings for EVA P.24's include Delta 116, 109 and 129.

The model of Delta 109 illustrated was decalced using the codes from the Techmod sheet, fuselage roundels from the Broplan sheet and wing roundels from a Plastimodellismo sheet. The decals for the fuselage of Delta 106 were made up using characters from the Skala 1:72 sheet and Plastimodellismo roundels. To conform with early wartime practice no underwing roundels were added.□

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APRILDAGENE 1940

The Danish Air Services Defense Against the German Invasion: April 9th, 1940

Chapter 2

Danish Naval Air Arm, 1912 – 1940

The Early Days

Following the army's example, two naval officers—First Lieutenants (1Lt) S. A. Christiansen and W. H. F. Laub—reported for flying training at the newly established civilian flying school at Kløvermarken on 14 December 1911. Meanwhile, 1Lt H. C. Ullidtz had received some flying instruction in France and upon returning to Denmark, he continued his training with Danish aviator Robert Svendsen who used a copy of a Henri Farman pusher that he had built himself. Svendsen was a noted Danish aviation pioneer and made history as the first person to fly across the waters separating Denmark and Sweden.

Once Ullidtz had finished his training, the Farman copy was purchased by General Consul V. Ludvigsen who presented it as a gift to the navy on 25 March 1912. This early design was an open bay (no fuselage pod) biplane powered by a 50hp Gnome rotary and had no markings except the Danish Naval pennant painted on the rudder. In the finest tradition of the maritime service, the aircraft—seen as a “ship of the air”—was given a formal name: “Glenten”, meaning “Kite”.

In February the next year Ullidtz and Christiansen (who had also received his pilot's certificate in 1912) were joined in the nascent naval air service by Danish aviator Ulrich Birch. Birch was hired as a “naval aviator” and instructor using his 70hp Renault powered Maurice Farman biplane, named “Ørnen” or “Eagle”. This arrangement did not last long, however, because in October that year Birch crashed his aircraft and later died of his injuries.

Meanwhile another gift was underway which would set the Danish naval aviation branch on its course of being primarily a water-borne service. In 1912 interested Danish citizens raised 43,000Kroner for the purchase of two Donnet-Lévêque Type A seaplanes from France. While these were being constructed a hangar and slipway were built at Kløvermarken for the storage and launching of the new, single-engine biplane flying boats. The machines, named “Maagen” and “Ternen” (“Seagull” and “Tern”), were delivered in April 1913. While these were small two-seaters powered by 80hp Gnome rotaries and had limited performance, they were very useful for training the neophyte young naval aviators.

“Maagen” was lost in an accident in late 1914 and “Ternen” was renamed “Maagen 2”, continuing to serve until it was lost in September 1915. Meanwhile the navy recognized the utility of the small flying boats and wanted more of them. Since the beginning of WWI precluded purchase of additional examples from France, the Royal Naval Dockyard (*Orlogsværftet* or OV) was ordered to begin producing copies of this design. Although the wing structure differed from the original, they were powered by the same 80hp Gnome rotary, giving them a top speed of 62mph (100km/h).

Although initially nicknamed “Maagen 3”, “Maagen 4”, etc., in series, the navy soon implemented an abbreviated designation and type numbering system. Two letters were used, the first designating the type of aircraft: F was for “flying boat”, H for “hydroplane” (meaning floatplane), and L stood for “land plane”. The second letter indicated the wing configuration: B for “biplane” and M for “monoplane”. The letters were followed by Roman numerals to designate the specific design of that type and configuration. Thus the original Donnet-Lévêques became F.B. Is and the *Orlogsværftet*-built copies with the new wing structure were designated as F.B. IIs. The first F.B. II (actually Nr. 3) flew on the day after Christmas, 1914, and it was soon followed by seven others.

The Danish naval air arm, an informal untitled branch at that time, began WWI with the two original F.B. Is and five aviators. With the German mining of the straits—known as “The Sound”—between Denmark and Sweden, it was obvious the Danish navy would have to be aggressive in its enforcement of the nation's neutrality and the defense of its territorial waters. Like their progenitors, the F.B. IIs were merely training machines, but *Orlogsværftet* was quick to modify and improve the design to enable the next version to carry weapons. Therefore, in October 1915, engineer H. P. Christensen mounted a 100hp Gnome on the newest iteration and added an 8mm machine gun and the capability to carry and drop four 9kg (19.8lb) bombs making a warplane of the training machine. Ten of these F.B. IIIs were produced from 1916 on and these actively enforced Danish neutrality until 1918 when they were relegated to the training role by the arrival of more powerful and effective armed seaplanes.

In 1917 the naval aviation unit moved to the newly prepared *Luftmarinestation København* (“Naval Air Station Copenhagen”) at the east end of Holmen Naval Base. This convenient location allowed the seaplanes to taxi straight into The Sound for take-off rather than into the cluttered and confined waters of Copenhagen Harbor. About this time *Marinen's* warship squadron safeguarding the Great Belt had an increased need for reconnaissance aircraft so several F.B. IIIs were based at a new seaplane station at Slipshavn in Nyborgfjord.

In the early days relatively frequent accidents were a problem resulting in fairly high attrition for the service's new aviation branch. By the end of 1917 the navy had only 12 F.B.s on hand out of 20 procured. Consequently as subsequent examples of type II and III were produced by *Orlogsværftet*, they were sometimes given serial numbers of previous, now destroyed, aircraft. For example, the F.B. IIs were numbered in the 1-10 range, but only serial numbers 1-4 were used for the eight examples. F.B. IIIs were numbered in the 11-20 range but only six of these numbers were used by this type (number 14 and 17 were used twice).

This year also saw the development of the further improved F.B. IV version, the first example (serial number 21) flying on 17 April 1917, powered by a 150hp Curtiss motor. The F.B. IV had larger wings and hull and later mounted a 200hp Curtiss which gave it a top speed of 83mph (133km/h). Two examples (21 and 22) were produced, followed by three F.B. Vs—a somewhat smaller trainer variant replacing lost F.B.IIs and serialled “6” through “8”.

The only belligerent seaplane to be pressed into Danish service—a Friedrichshafen F.F.29—alighted in the Great Belt on 24 February 1917. Interned and given serial number “17” (although no Danish designation), this aircraft was lost on 16 October that year while being towed. The efficacious German design did, however, help fuel a growing interest in floatplanes to replace the heavy flying boats.

Production of a Danish-designed floatplane, called the *Pontonmaskinen* (“Float Aircraft”) and designated H.B. I, by *Orlogsværftet* (abbreviated “OV”) began in 1918. This original design mated the efficient German floatplane configuration with the powerful 160hp engine, also manufactured by *Orlogsværftet*, to produce a very effective aircraft. It carried an 8mm machine gun for rear defense and four 7.5kg (16.6lb) bombs and had a top speed of 79mph (127km/h). Originally the four examples were given serial numbers 23-26 and replaced the F.B. IIIs as the primary patrol aircraft policing Danish waters.

After WWI the Danish parliament decided to cease domestic aircraft production, largely due to the high number of accidents experienced. This decision was offset by the fact that many war-surplus types were now available at bargain prices. Thus, in conjunction with the Ministry of Public Works, in May 1919 the navy purchased five Friedrichshafen F.F.49s in order to establish airmail service between Copenhagen and Stege on the island of Møn. Powered by the reliable 220hp Benz engine, these were serialled 31-35, with an additional two (36 and 37) being operated by *Dansk Luft-Express* (“Danish Air Express”), these were designated H.B. IIs. Replacing the F.B. types, which were largely retired at this time, they were also used for training and fishery protection.

Additionally a Curtiss Seagull two-seat flying boat was acquired in 1919, purchased by Danish-American John M. Larsen, who had been flying it around Scandinavia. Powered by a 160hp Curtiss K6 six-cylinder in-line engine, this aircraft was of the same configuration as the F.B. series but with longer wings and more power and had an better payload capability. Designated an F.B. VI and initially assigned serial number “27”, it was renumbered “17” in 1923 and written off the following year.

About the same time, on 14 July 1919, the navy also purchased a Hansa-Brandenburg W.29 float monoplane, designating it H.M. I. Arguably the best two-seat maritime fighter of WWI, the clean single-wing design, coupled with the 150hp Benz motor, was faster (100mph/160km/h) than the Friedrichshafen biplane, even though the latter had a more powerful engine, and was selected to be license-built by *Orlogsværftet*. Powered by the 160hp OV six-cylinder, these were serialled in the 20-30 series, with the pattern aircraft being number “24” and the three remaining H.B. Is being renumbered 14-16.

Production was slow with two (Nrs 21 and 22) being delivered in 1921. That autumn 1921 the 3,700-ton coastal battleships *Olfert Fischer* and *Peder Skram* were modified to embark H.M. I seaplanes. Additionally the ancient (1863) wooden sail/steam gunboat *Willemoes*, now reclassified as a survey vessel, acted as a seaplane tender supporting the floatplanes during exercises. With this deployment of seaplanes the navy began experiments coordinating the naval air service flights with the fleet operations.

The next year three more examples were produced (Nrs 23, 25 and 26) and over the next two years four replacements were built, followed by five additional examples in 1925 and another pair in 1927. Because production was limited to 2-3 per year and had trouble keeping pace with accidents, the naval service never had more than nine examples on strength at any one time (1925) and an annual average inventory of six.

The last two produced (Nrs 20 and 30) came equipped with Telefunken radios to make reconnaissance reporting and naval gunnery correction much more effective. During the 1920s other modifications were made to improve the design, including a redesigned exhaust system, increased elevator size, external auxiliary fuel tank, and an observer’s windscreen, among others. The H.M. I was equipped with a Madsen-designed DISA 8mm machine gun on a Scarff-type mounting in the rear cockpit and from 1924-27 they mounted a synchronized Vickers .303 (7.9mm) machine gun on the right side of the fuselage, firing forward. These were removed to help alleviate the chronic nose-heaviness of the type.

Initially the H.M. Is were painted overall gray with large serial numbers in white on the fuselage sides, red-and-white Danish roundels on the wings and the naval ensign on the vertical fin and rudder. Interestingly the original W.29 (Nr. 24) had different style numerals and carried red-white-red vertical stripes on the rudder. When this example emerged from its use as the pattern aircraft it was painted and marked as the *Orlogsværftet*-produced copies. In the later 1920s the paint was changed to an aluminized finish.

With the seaplane force well established and flying ever more powerful aircraft, a need was seen to introduce the newest naval aviators to flying in more docile and tractable land-based aircraft. Therefore in 1921 the navy purchased five WWI-vintage AVRO 504K trainers from the Aircraft Disposal Company in London. Designated L.B. Is, these were used for elementary flight training, initially from the army airfield near Avedøre, moving in 1923 to Kastrup. True to their WWI heritage, the 504Ks were powered by the old 100hp Gnome rotary engine and were serialled “101” through “106” under a new numbering system that used two-digit numbers for seaplanes and three-digit numbers for landplanes.

The elderly AVROs were difficult to keep airworthy and eventually one of them (105) was withdrawn to be used as a spare parts donor. The old Gnome engines too were troublesome and in September 1925 the navy purchased the improved 504N model (serialled “107”), powered by the new 180hp Armstrong Siddeley Lynx IV seven-cylinder radial. A license for local production was also purchased and *Orlogsværftet* built an additional three examples (Nrs 108-110) and in 1927 and 1929 re-engined with Lynxes the 504Ks “106” and “104” respectively (renumbering them “111” and “112” in

the process), providing six trainers total for the navy's flying school.

Marinens Flyvevæsen

The Danish Navy's aviation service, *Marinens Flyvevæsen* ("Naval Flying Service") was formally established on 15 September 1923 as a branch directly subordinated to the Ministry of The Navy. The naval air arm consisted of one seaplane unit, the flying school (*Marinens Flyveskole*), and the seaplane base at Holmen. Command was given to *Kaptajn* (Capt) Asger E. V. Grandjean who had been trained as a pilot.

About this time the navy recognized the vulnerability of its W.29 floatplanes and the need for air cover for its fleet units. A proposal by *Orlogsværftet* for a two-seat fighter floatplane was considered but rejected because of the inherent performance limitations compared with the land-based fighters the type would face. Consequently a commission was sent to England to seek a suitable modern land-based fighter for this mission. The commission settled on a modified version of the Hawker Woodcock Mk.II.

Named the *Dankok* ("Danecock") in Danish service and designated the L.B. II, the Danish version of this robust and rotund biplane fighter was powered by a 385hp AS Jaguar IV radial giving it a top speed of 146mph (235km/h). These mounted a pair of Vickers .303cal machine guns in the fuselage sides (some of which came from the H.M. Is when removed from them in 1927) and were the equal of any fighter they would face from Sweden or Germany at that time. The first *Dankok* (serialized 151) flew on 15 December 1925 and was delivered the following January, soon followed by two more factory-built examples (Nrs 152 and 153). As was the Danish practice, a license for local production was also purchased and an additional dozen examples (Nrs 154-162) were built by *Orlogsværftet* during 1927-28.

Since the primary mission of the land-based fighter section was the protection of the reconnaissance floatplanes, a centrally located airfield was needed from which the fighters could fly to cover operations in both The Sound (the Danish-Swedish waters) and south of the Great Belt (facing Germany) with equal ease. Therefore, in 1926 the navy obtained the use of the former army training grounds at Ringsted in central Zealand and established its second *Luftmarinestation* there. This also brought about the organization of *Marinens Flyvevæsen* operational forces into two squadron-sized *Luftflotilles* ("air flotillas"): one for floatplanes, based at Copenhagen; and the second for landplanes stationed at Ringsted.

The *Flyveskole* also moved to Ringsted in 1926 and soon realized the need for additional aircraft to provide pilots to the expanded air service. To supplement the six AVRO 504Ns a pair of De Havilland DH. 60G Moths (L.B. IIIs, Nrs 148 and 149) in 1928, followed by three of the improved DH. 60Ms (serialized 145-147) in 1931.

By this time, however, Ringsted had proved itself unsuitable for elementary flight training because it was surrounded by tall trees and telephone poles, making landing approaches particularly hazardous for inexperienced student pilots. Consequently, the navy leased some land on the Avnø Peninsula, on the south tip of Zealand, and built there its third

Luftmarinestation. The *Flyveskole* moved to its new home in 1930.

Units of *Marinens Flyvevæsen*

On 9 April, 1940, *Marinens Flyvevæsen* consisted of:

1.Luftflotille—Established on 12 October 1926, flying the single remaining Friedrichshafen F.F.49 and six Hansa-Brandenburg W.29s. The last well-worn F.F.49 was withdrawn from service that same year and *Flyvevæsenet* was soon looking for replacements for the W.29s.

In 1928 six Heinkel H.E. 8 (note: H.E. stood for *Heinkel Eindecker* and should not be abbreviated He as was used later under the Luftwaffe) floatplanes were purchased from the factory in Germany. The H.E. 8 design was an extremely clean and robust float-mounted monoplane powered by the 460hp Armstrong Siddeley (AS) Jaguar IV C radial. Ostensibly designed as a "mail plane" it was capable of a top speed of 130mph (210km/h) and had a range of 685 miles (1,100km). While German aircraft designers were precluded under the Versailles Treaty from building military aircraft, the H.E. 8 proved to be very easily modified to carry two machine guns, eight 12.5kg (27.5lb) M/35 bombs and radio equipment.

Designated H.M.IIs and serialized "99" through "94" (oddly the H.E. 8s were numbered in reverse order), the half-dozen H.E. 8s replaced the four surviving W.29s in *1.Luftflotille* (abbreviated *1.LF*) in 1928 and a license was purchased for local manufacture of additional examples by *Orlogsværftet*. Five (Nrs. 93-99) were built that same year, followed by two more (Nrs. 88 and 87) the next year and another six (Nrs. 86-81) in 1930.

In the early 1930s, developments in Greenland brought the need for these aircraft into sharp focus. Norway, which had been independent only since 1905 and had no colonial territories, challenged Denmark's sovereignty over Greenland since there was no effort evident to enforce it. In 1931 Norwegian hunters occupied several areas on the northeast coast of the icy sub-continent and were given police authority there by the Norwegian government. The next year the Danes countered by dispatching two exploratory expeditions to begin mapping Greenland and thus demonstrate Danish sovereignty over its claimed territory. The expeditions sailed on three naval vessels, the 415ton fishery patrol vessel *Beskytteren* and schooners *Godthaab* and *Gustav Holm*, each one embarking an H.E. 8 for aerial photography and cartography purposes. To assist in location of downed aircraft and the rescue of their crews the Heinkels were painted a bright red.

The following years saw an annual expedition, each with one or two H.E. 8s included. (Aircraft "84" and "87" are known to have participated.) Under the auspices of the *Geodætisk Institut* these expeditions surveyed the vast expanse of Greenland created the first complete maps of the barren sub-continent. These expeditions and the resulting mapping proved to the International Court in The Hague that Denmark did indeed exercise its sovereignty over Greenland in July 1935 the whole of the sub-continent was awarded to Denmark. The participating *Flyvevæsenet* aircrews and the extensive overflights they conducted were instrumental in this positive result.

The harsh operating conditions in Greenland, as well as the usual forms of attrition inevitably reduced the inventory of *1.LF*

and in 1938 an additional three examples (Nrs. 80-78) were produced by *Orlogsværftet*. That same year the navy purchased a twin-engine Dornier J III Wal flying boat (F.M. I; Nr. 50) for the continuing Greenland expeditions. It was primarily used for search and rescue tasks.

While the Greenland expeditions were going on, back in Denmark, *Marinens Flyvevæsen* was seeking a more offensive capability to augment its H.E. 8 reconnaissance floatplanes. Previously, in 1927 it experimented with a version of the RAF's Supermarine Southampton, called the "Nanok". This was a large, three-engine (400hp AS Jaguar IVs) biplane flying boat that could carry a 45cm (18in) torpedo. It had a crew of four and mounted three machine guns for defense. However, it was still slow and vulnerable and very expensive and, even though it was given a Danish designation (F.B. VII) and serial number (99), it was not accepted into service.

Five years later it was decided to try more traditional single-engine biplanes as torpedo attack aircraft. In 1928 the RAF had developed the large, heavy Hawker Horsley bomber as a torpedo carrier and the navy purchased two, designated H.B. IIIs and called "*Dantorps*" in Danish service. Powered by the 840hp AS Leopard III A and capable of operating from wheels or floats (hence its serials "201" and "202") the *Dantorps* could carry some 880lbs (400kg) of bombs or the standard 45cm (18in) naval torpedo.

However, torpedo dropping was a new form of maritime attack and had to be extensively tested before putting into operation. A license for *Orlogsværftet* to produce an additional ten examples was purchased, but by the time the trials were completed in 1936, the navy had far more urgent needs. Meanwhile the *Dantorps* were retained on strength and were used to form their own "flight", or *Lufigruppe* (abbreviated LG), subordinate to 1.LF, designated 9.LG.

At the end of the 1930s, 1.LF was equipped with 13 H.E. 8s, two *Dantorps* and one Wal. The winter of 1939/40 was particularly harsh, leading to the safe-havening of most of the unit's aircraft. In December the two Hawker *Dantorp* torpedo bombers, eight H.E.8s, and the Wal flying boat were all placed in storage. These were being returned to service at the unit's base in Copenhagen harbor when the Germans invaded. Of the five operational Heinkel floatplanes, two were stationed in Copenhagen harbor, two at the re-activated seaplane base at Slipshavn, a small harbor near Nyborg on the Great Belt. The fifth H.E.8 (Nr. 79) was embarked upon the coastal defense ship *Peder Skram* which was stationed in Frederikshavn Roads on the night of 8/9 April.

2.Luftflotille—Established at Ringsted on 12 October 1926 with the first three of an eventual 15 Hawker *Dankok* biplane fighters. The *Dankok* proved to be a very effective fighter but was soon overcome by the rapid advance of aviation technology in the late 1920s and early 1930s. By 1933 the need for a faster and more modern fighter was acute and *Kommandør* (Commander Senior Grade) Grandjean obtained approval to acquire newer fighters in spite of the tight economy resulting from the Worldwide Depression.

The new British Hawker Nimrod Mk.II was selected. Although bearing a strong resemblance to the very popular Fury, the Nimrod was an entirely separate design for a Fleet Air Arm fighter. Sleekly designed with a strong all-metal frame, the

Nimrod had interchangeable wheel, ski, and float undercarriages and a choice of Rolls Royce Kestrel engines could be fitted. The Danes chose the 535hp Kestrel III S, giving their fighter a top speed of 199mph (320km/h).

The first two Danish Nimrods (Nrs. 170 and 171) were built by Hawker and arrived on 31 January 1934. Following the Danish practice, *Orlogsværftet* was licensed to produce another ten examples (Nrs. 172-181) and completed them from November that year to September 1936, the *Dankoks* being fully replaced by the end of that year. The new fighters were armed with a pair of new, more powerful 8mm Madsen M/33 machine guns and could carry four 12.5kg (27.5lb) bombs. Dive-bombing, using 60 and 30 degree attacks, was practiced and skis were normally used in winter.

Ringsted, with its small landing ground and tall obstacles all around, soon proved too hazardous for the higher performance Nimrods which had relatively high landing approach speeds. In 1936 the lease at Avnø was changed to a purchase and the next year 2.LF moved to the larger and more open airfield; Ringsted was closed. Nevertheless, attrition was high and three Nimrods were lost in accidents before 1940.

The Nimrods were originally delivered in an aluminized finish and black serials and the usual Danish roundels on the wing and naval pennant on the tail. In 1938 a camouflage scheme was adopted using a disruptive pattern of olive green and medium brown with light blue undersides. The upper wing topside was in green only. Serials remained black with the standard national and naval markings. Once WWII began the Nimrods flew regularly, mounting neutrality patrols to enforce Danish neutrality.

As mentioned above the winter of 1939/40 was particularly harsh and the Nimrods flew on skis for five weeks in January and February. By April one of the Nimrods was back at *Orlogsværftet* for overhaul. The remaining eight were organized into two flights, 5.LG and 6.LG, and after receiving word confirming the German landings in the early hours of 9 April, they were armed with their 8mm ammunition and prepared to meet the invaders.

Marinens Flyverskole—Established when the time *Marinens Flyvevæsen* was instituted in 1923 and based at Avnø since 1930. By 1940 the AVRO 504s had all been retired and only two DH. 60M Moths (Nrs 145 and 147) remained on strength.

In the interim, the navy had purchased two AVRO 621 Tutors from the factory in England in 1932. Continuing the serial numbers from the AVRO 504s which they replaced, they were numbered "113" and "114". With the relatively powerful (for a trainer) 215hp AS Lynx IV C engine, the Tutor (L.B. IV) proved to be a very effective trainer and a third example (Nr. 115) was acquired in 1935, as well as a license for local production. *Orlogsværftet* built its first (Nr 116) the following year, followed by two more (Nrs. 117 and 118) in 1937. On 11 March that year "113" was lost in an accident at Øresund, leaving five of the type on strength when the Germans invaded.

□

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APPENDIX ONE **Danish Military Aircraft Serial Numbers**

Army Air Arm				
Type Aircraft	Nbr Used	Yrs Used (Note 1)	Danish Designation	Serial Numbers
Berg og Storm III	1	1912-14	--	--
Maurice Farman M.F. 7	4	1913-19	--	M.F. 1 – M.F. 4
Henri Farman HF.20	4	1913-19	--	H.F. 1 – H.F. 4
Bleriot	1	1915	--	--
Morane-Saulnier H	2	1915-19	--	M.S. 1 – M.S. 2
Södertälje S.W. 17	2	1915-19	--	S.W. 1 – S.W. 2
Dansk Konstruktion I	1	1916	--	D.K. 1
Dansk Konstruktion II	1	1916-19	--	D.K. 1
Caudron G.III	1	1917	--	Cd. 1
Vickers F.B. 5	12	1917-19	--	V. 1 – V. 12
Nielsen og Winther Aa	6	1917-19	--	N.W. 1 – N.W. 6
H-Maskinen	9	1918-19	--	H. 1 – H. 9
LVG B.III	5	1920-29	--	1 – 5
Rumpler B. I	1	1921	--	--
Breguet XIV.A2	4	1921-27	--	Civilian Registrations
Fokker D. VII	1	1922-27	--	F-1
AVRO 504K	5+	1922-31	--	1 – 3
Potez XV. A2	8	1923-26	--	1 – 8
Fokker C. I	5	1923-32	--	F-2 – F-6; Later O-51 – O-55
Fokker S. III	2	1924-27	--	S-1 and S-2
Fokker C. Vb	18	1926-40	M/26, I R	R-1 – R-18
O-Maskinen	15	1926-40	I O	O-56 – O-70
De Havilland DH 60G	6	1928-34	--	S-100 – S-105 In 1932: S-351 – S-355
De Havilland DH 60M	2	1930-34	--	S-106 – S-107 In 1932: S-356 – S-357
Bristol Bulldog 105D	4	1931-40	I J	Initially J-151 – J-154 J-301 – J-304 in 1932 J-1 – J-4 from 1933
O-Maskinen	7	1932-40	II O	O-71 – O-77
Fokker C. Ve	12	1933-40	M/33, II R	R-21 – R-32
Fokker C. Ve	12	1935-40	M/33, III R	R-41 – R-52
De Havilland DH 82	5	1933-40	I S	Initially S-358 – S-362 S-1 – S-5 from 1933
De Havilland DH 82A	10	1934-40	I S	S-6 – S-15
De Havilland DH 84	2	1934-39	II S	S-21 and S-22
Gloster Gauntlet	18	1935-40	II J	J-21 – J-38
De Havilland DH 90	2	1937-40	III S	S-23 and S-24
Cierva C.30 (AVRO 671)	2	1936-40	I M	M-1 and M-2
Fokker D. XXI	12	1938-40	III J	J-41 – J-52
Naval Air Arm				
Type Aircraft	Nbr Used	Yrs Used (Note 1)	Danish Designation	Serial Numbers
Henri Farman	1	1912-13	--	"Glenten"*
Maurice Farman M.F. 7	1	1913	--	"Ørnen"*
Donnet-Lévêque Type A	2	1913-14	F.B. I	"Maagen"/"Maagen 1"*
		1913-15	F.B. I	"Ternen"/"Maagen 2"*
OV Flyvebaad	8	1914-19	F.B. II	1 – 4**
	10	1915-20	F.B. III (Note 2)	11, 12, 14 – 17**
	2	1917-19	F.B. IV	21, 22
	3	1918-21	F.B. V	6 – 8
Friedrichshafen F.F.29	1	1917	(Interned Aircraft)	17*
OV Pontonmaskiner	4	1918-24	H.B. I	23 – 26; Later 14 – 16**
Friedrichshafen F.F.49	7	1919-26	H.B. II	31 – 35
Hansa-Brandenburg W.29	16	1919-30	H.M. I	20 – 30***
Curtiss Seagull	1	1919-21	F.B. VI	27; later 17**
AVRO 504K	6	1921-28	L.B. I	101 – 106
AVRO 504N	4++	1925-36	L.B. I	107 – 112
Hawker Dankok	15	1926-37	L.B. II	151 – 165
Supermarine Nanok	--	1927	F.B. VII	Not Accepted
De Havilland DH 60G	2	1928-31	L.B. III	148 and 149
De Havilland DH 60M	3	1931-40	L.B. III	145 – 147
Heinkel H.E. 8	22	1928-40	H.M. II	78 – 99
AVRO 621 Tutor	6	1932-40	L.B. IV	113 – 118
Hawker Dantorp	2	1933-40	H.B. III	201 and 202
Hawker Nimrod II	12	1934-40	L.B. V	170 – 181
Domier J III Wal	1	1938-40	F.M. I	50

* These aircraft all written off prior to institution of serial numbering system.

** These Serial Numbers used more than once.

*** Numbers 21-24 and 26 were used twice.

+ Originally three army 504Ks were purchased, followed by another two later as replacement machines, re-using the destroyed aircraft's serial number

++ In addition two navy 504Ks re-engined with AS Lynx radials and modified to 504N standard.

Notes:

1. These are years the aircraft was used in their primary role as a flying machine. Does not include time on strength as maintenance, technical or taxiing trainers.

2. Originally the F.B. types (IIs and IIIs) were numbered 1-6, with the F.B. IIIs using 4-6; however as replacement machines were built the numbering became confusing, so around Aug 1916 the system was changed so that F.B. IIs were numbered 1-4 and F.B. IIIs were numbered in the 11-20 series.

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2. Kofoed, Hans, *Danske Militærfly Gennem 50 År: 1912 – 1962*, ("Danish Military Aviation History, [the first] 50 Years"), Copenhagen: Ejvind Christensen, 1962.
Portions translated by Kai Willadsen, 2006

Captions for photos on pages 53-56 Photos are from the Thijs Postma Collection, unless otherwise noted.

1. The Danish naval air arm was the first of the two services to include fighters in its inventory. In 1925 the navy shopped abroad for an effective fighter aircraft and adopted the rotund Hawker Woodcock for its needs. Three were bought from the British factory, followed by 12 license-built by *Orlogsværftet* ("Royal Naval Dockyard"). Note the externally mounted Vickers .303-cal machine guns and the small bombs under the left wing.

2: Nine years later the *Marinens Flyvevæsen* again looked to Hawker to fulfill its defensive fighter requirements. The first two—#170 and #171—were built by Hawker and were provided complete with wheel spats. An additional ten were built by *Orlogsværftet*. Note the Avro 621 Tutor in the background.

3: The Hawker Nimrod was an elegantly streamlined design, its speed spoiled only by its many bracing wires. Powered by the 535-hp Rolls Royce Kestrel III S V-12 inline engine, it could make 194 mph (312km/h) top speed. The sleek beauty of Sydney Camm's design is plainly evident in flight.

4: In 1938 *Marinens Flyvevæsen* adopted a camouflage pattern of olive green and medium brown. The Nimrods were assigned to 2. *Luftflotte* and were divided into two "flights", called *Luftgruppe*, (5 and 6. *LG*). Here five Nimrods of one flight warm their engines prior to a training flight from Avnø.

5: A closer look at the camouflage pattern on Nimrod #181, the last example built for the *Marinens Flyvevæsen*. Not apparent in this view is the fact that the top wing was painted olive green overall. By April 1940 three Nimrods had been lost in accidents and a fourth was at *Orlogsværftet* for overhaul, leaving eight operational.

6: The mainstay of the Danish floatplane force between the wars was the Heinkel Eindecker 8 (H.E. 8), called the H.M. II in *Marinens Flyvevæsen* service. The first six were purchased in 1928 from the German factory. Curiously these were numbered in reverse order from #99 downwards. This is the second example, on its beaching gear at the Copenhagen seaplane station at Holmen Naval Base.

7: The H.E. 8 was a three-seat—pilot, observer and rear gunner—reconnaissance floatplane embodied in a very clean monoplane design. Here the second H.E. 8 rests at its mooring. Note the wind-driven electrical generator mounted to the fuselage side between the pilot and observer's cockpits, and the mast supporting the antenna aerial for the onboard radio.

8: H.E. 8 #87 on its beaching gear, warming its engine before launch. This aircraft had been repainted in an overall bright red, indicating it was destined for operations in Greenland (along with #84) in the early 1930s. Note that the aircraft serial number under the right wing is applied with the top of the numerals towards the wing leading edge/aircraft nose.

9: H.E. 8 #87, in all silver finish, on takeoff in Copenhagen harbor. Although the Zeppelin in the background compels attention, it is interesting to note the observer (middle cockpit) is apparently taking a photograph of the camera plane (likely #86). Note also that the serial number is repeated beneath the left wing, but is reversed—the tops of the numerals towards the wing trailing edge/aircraft tail.

10: H.E. 8 #86 escorting the *Graf Zeppelin* (LZ127) over Copenhagen, most likely on 14 May 1937 when the huge airship visited the Danish capital and dropped mailbags at Kastrup airfield. This photograph may have been taken by #87. Note the muzzle of the fuselage-mounted Madsen 8mm machine gun extending upper decking just aft of the Armstrong Siddeley Jaguar VI radial engine.

11: Excellent profile view of H.E. 8 #82 on its beaching gear. Its rear 8mm Madsen machine gun is mounted on its Scarff ring and the muzzle of its forward firing gun is evident in the nose.

12: H.E. 8 #81 was built by *Orlogsværftet* for *Marinens Flyvevæsen* in 1930. The very clean design is plainly evident in this view, in which the rear gunner demonstrates the firing position for his defensive machine gun. The observer is huddled over in his middle cockpit.

13: H.E. 8 #81 continuing its photo flight. The clean design and 460hp AS Jaguar engine gave the Heinkel a top speed of 130mph (210km/h) with a three-man crew, two machine guns and 220lbs (100kg) bombload.

14: Copenhagen seaplane base with eight H.E. 8s of 1. *Luftflotte* lined up on their beaching gear. This unit was formed in 1926 when the arrival of land-based fighters forced *Marinens Flyvevæsen* to organize the two disparate types into two individual units. A total of 22 H.E. 8s (the last three, replacement, machines in 1938!) were acquired and 13 were on strength in April 1940.

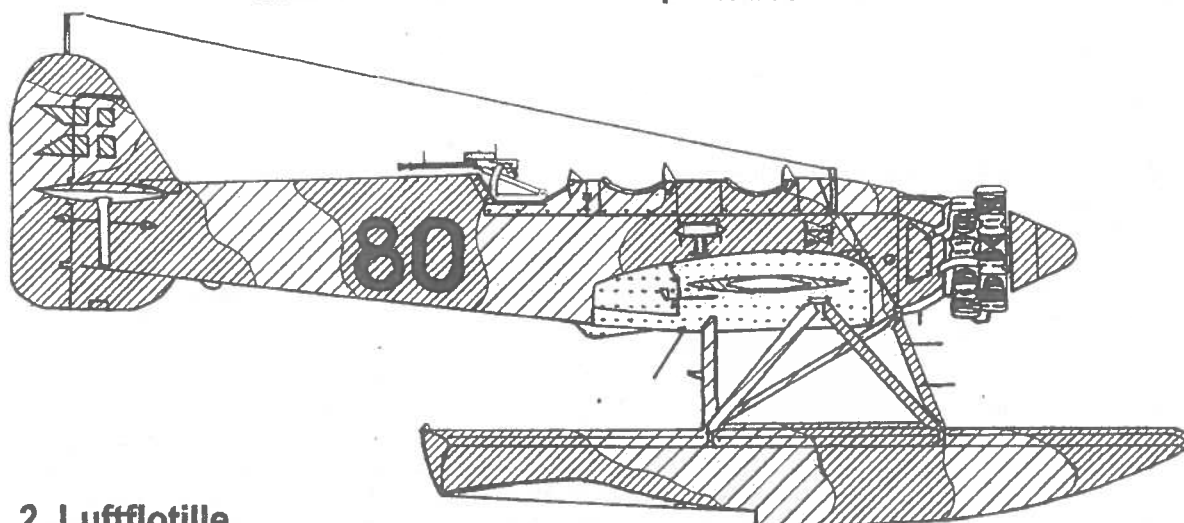
15: To give the navy's floatplane force an offensive capability, two redesigned Hawker Horsleys—called "Dantorps" (and H.B. IIIs) in Danish service—were acquired in 1932. The revised design was much more streamlined and could be mounted on floats or wheeled undercarriage. In addition to the two British-built examples, Denmark also purchased a license for *Orlogsværftet* to produce ten more, but by the time torpedo-dropping trials were completed in the late-1930s the slow biplane was completely obsolete for the role.

16: In 1939 the Danish navy acquired a twin engine Dornier Wal (D-AFAR) from Lufthansa for the Greenland expeditions still being supported by the navy. While a useful transport, the #50 was also used in search and rescue missions. Not very discernible in this photo is the fact that the tops of the wings, horizontal stabilizers/elevators, and sponsons were painted a bright red (with open squares for the Danish national insignia) to increase visibility for itself in case it was stranded in the forbidding wasteland of the arctic subcontinent.

AIRCRAFT OF *MARINENS FLYVEVÆSEN*

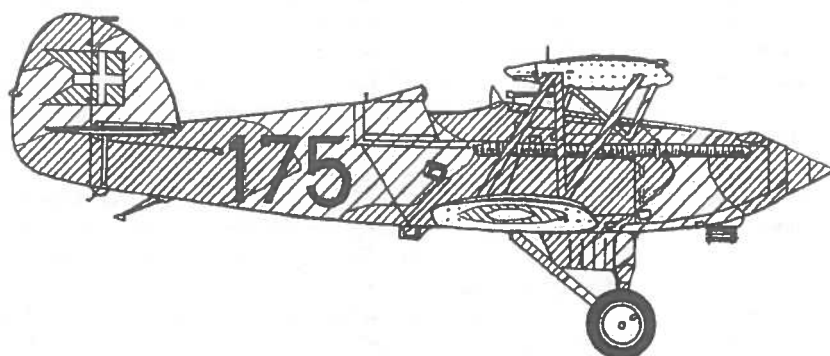
1. Luftflotille

Heinkel H.E.8 (H.M. II) Reconnaissance Floatplane #80



2. Luftflotille

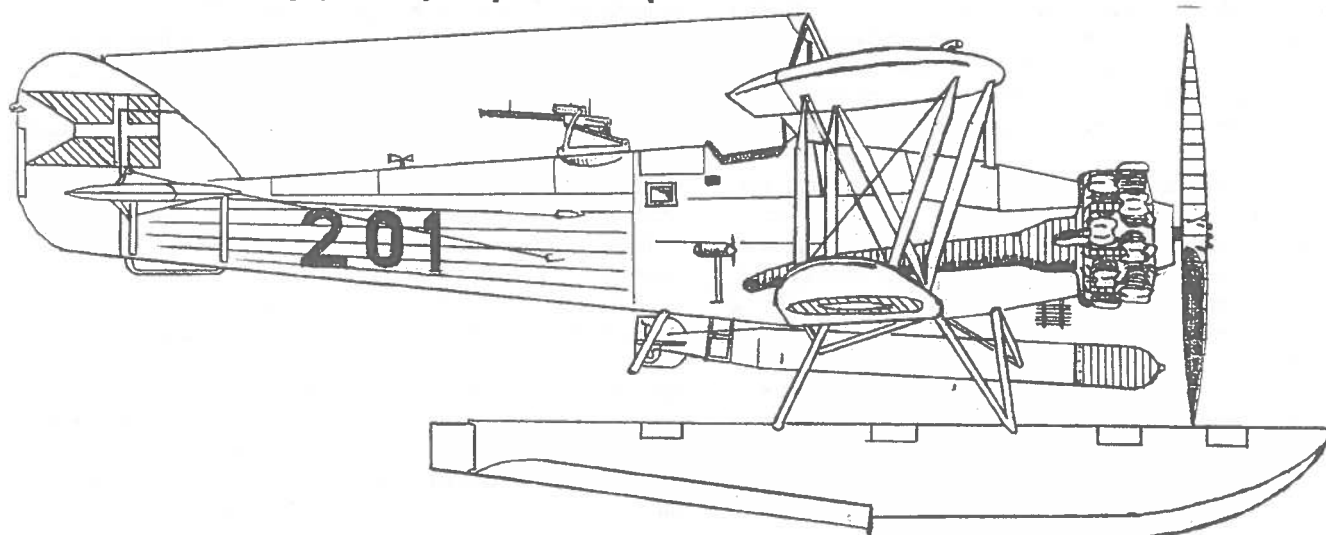
Hawker Nimrod (L.B. V) Fighter Biplane #175

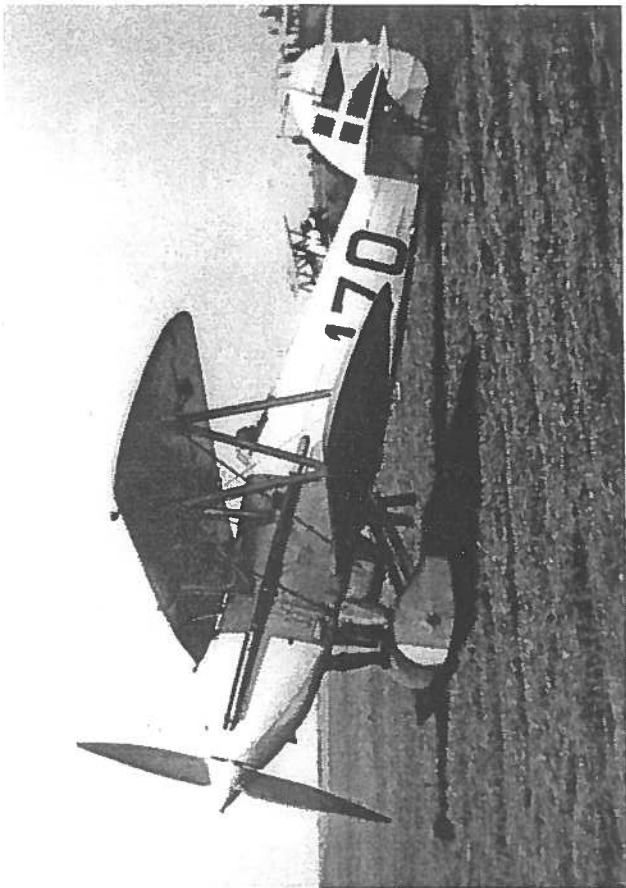


Color Key			
	Olive Green		Khaki Brown
	Light Blue		Silver Dope/Bare Metal
	Danish Insignia Red		Rubber/Black
	Prop Gray		Burnt Metal

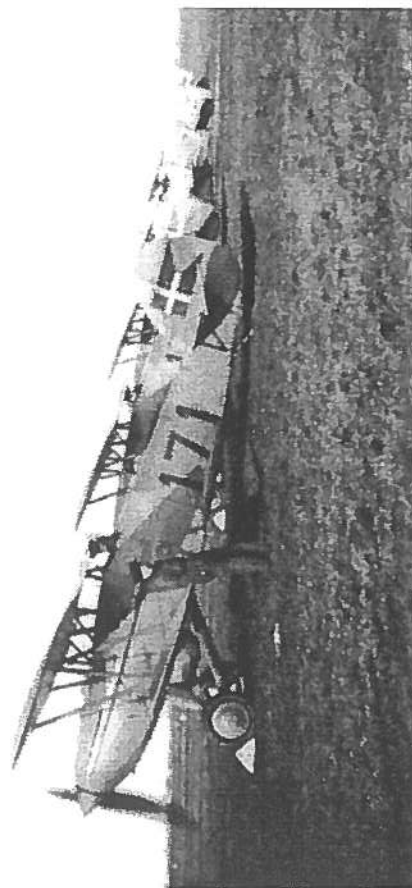
9. Luftgruppe

Hawker Dantorp (H.B. III) Torpedo Floatplane #202

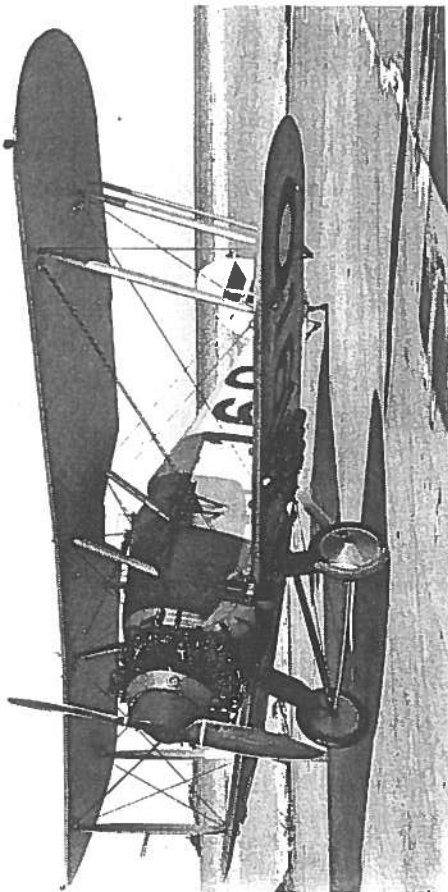




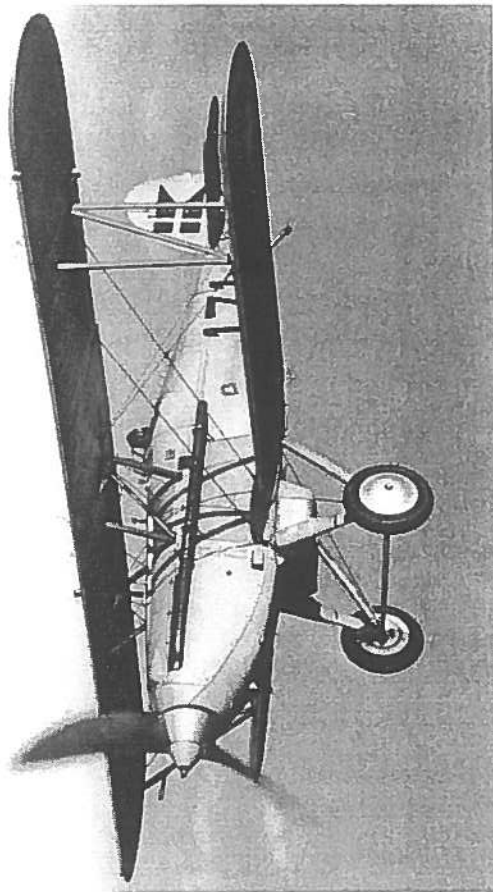
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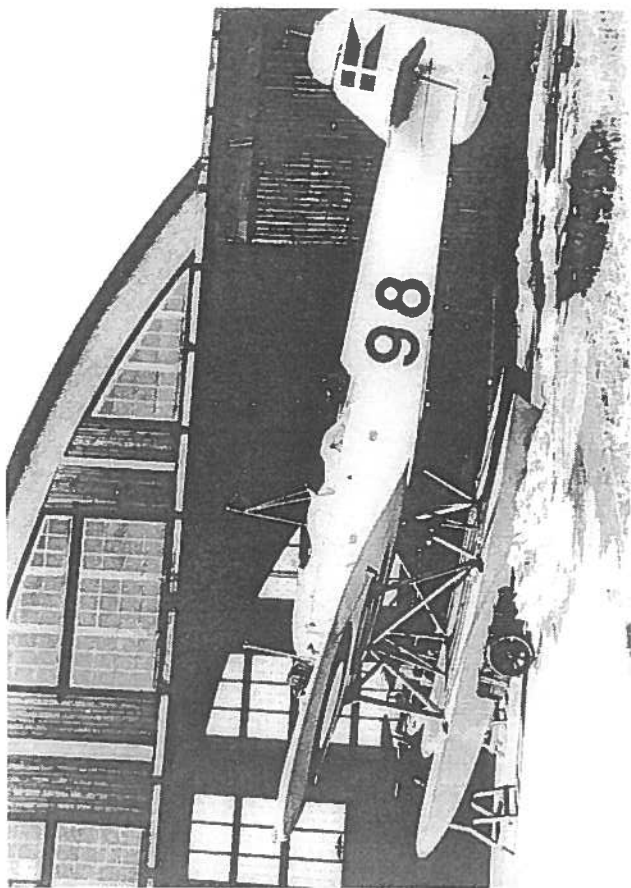
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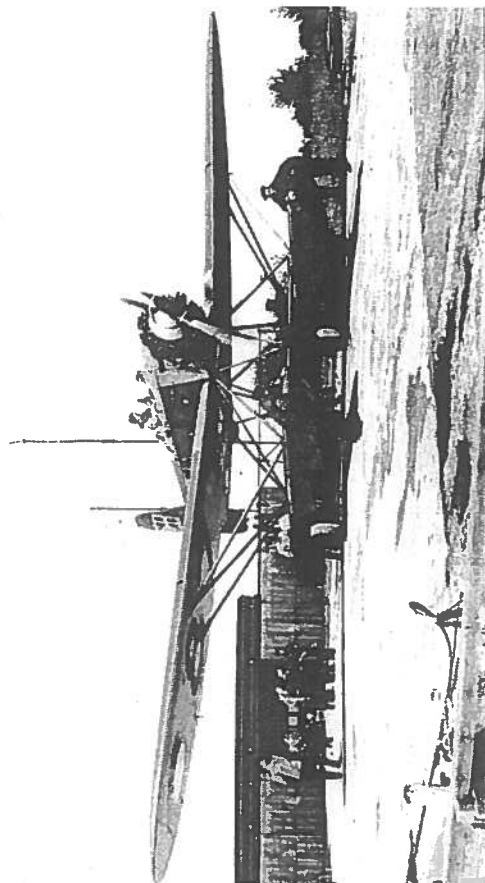
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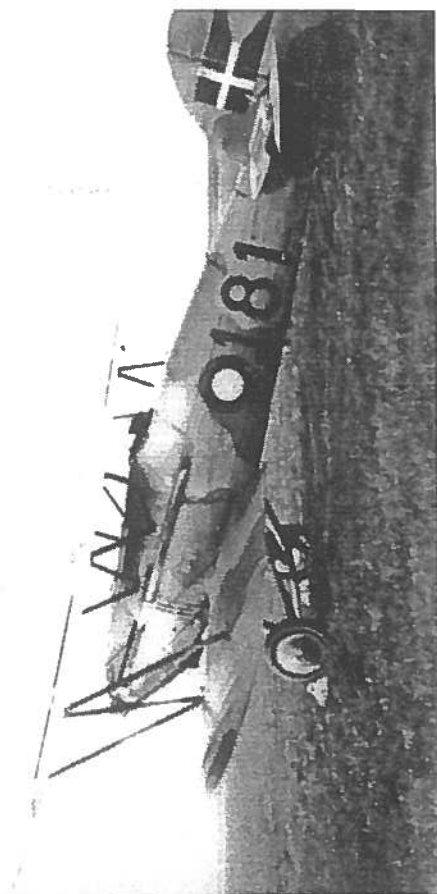
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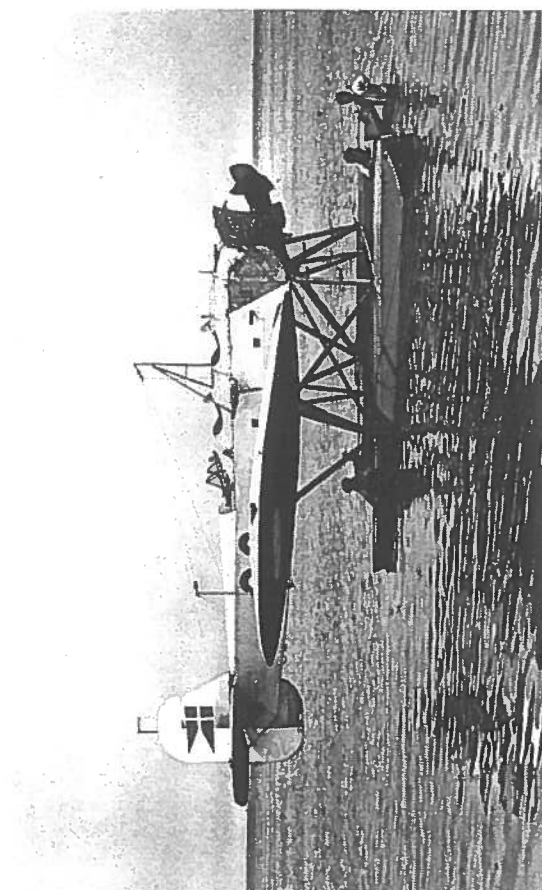
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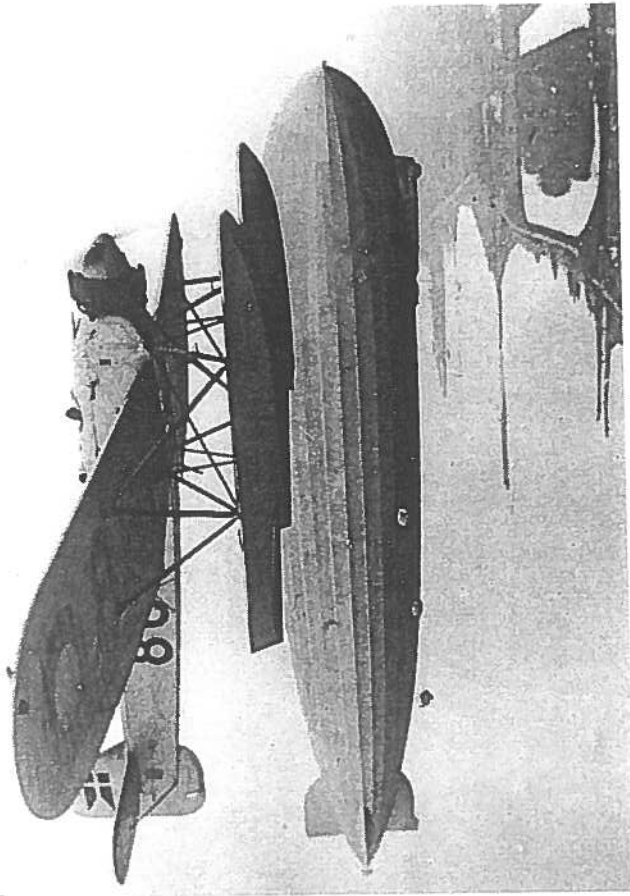
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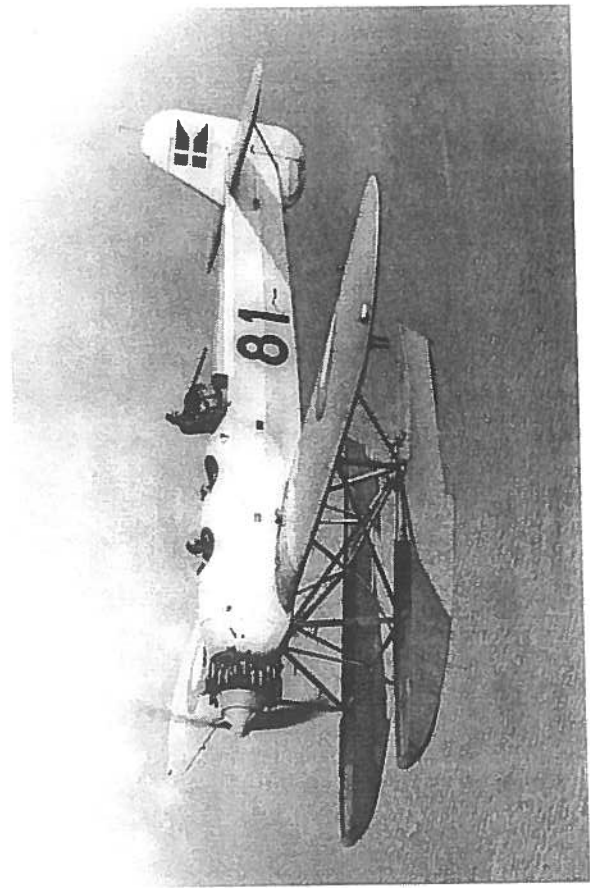
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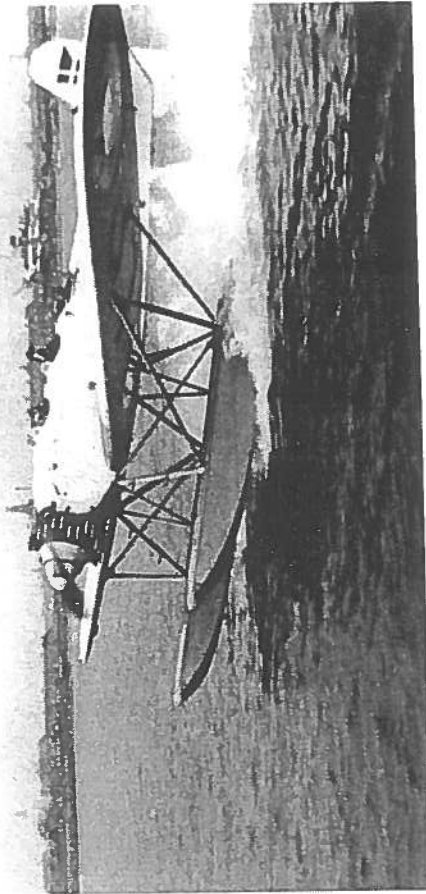
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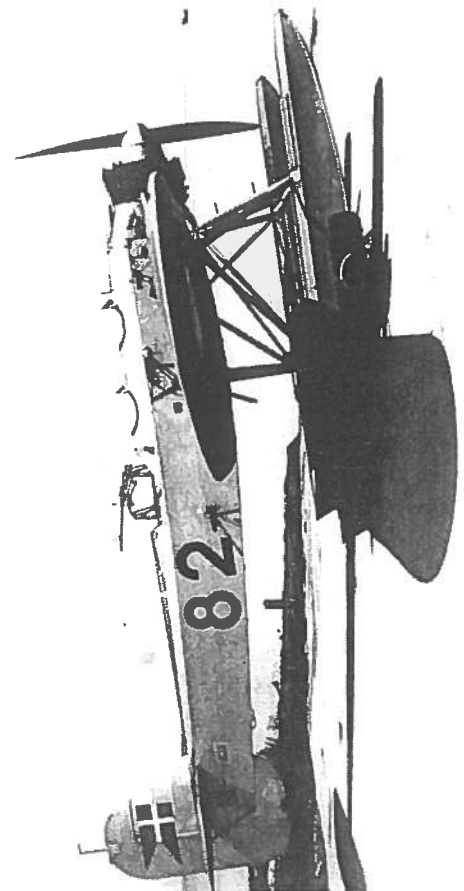
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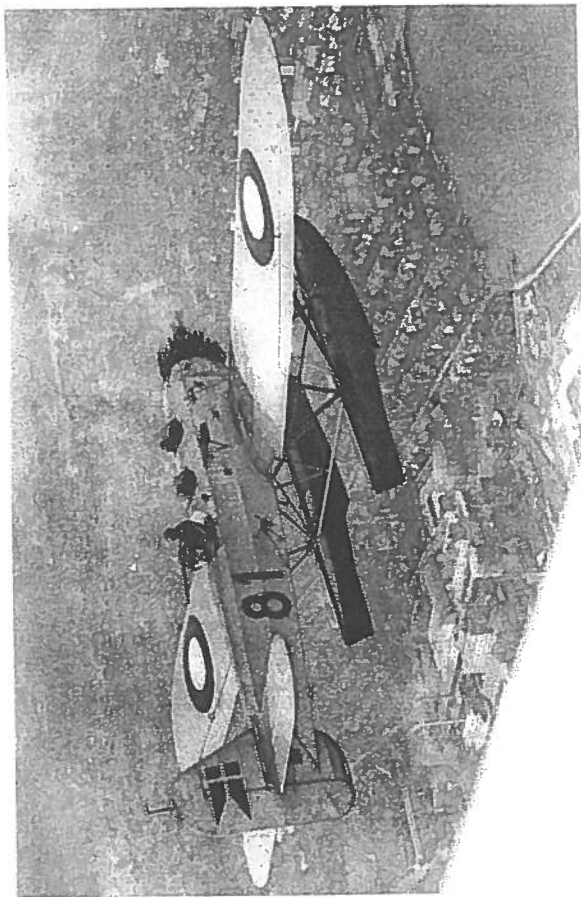
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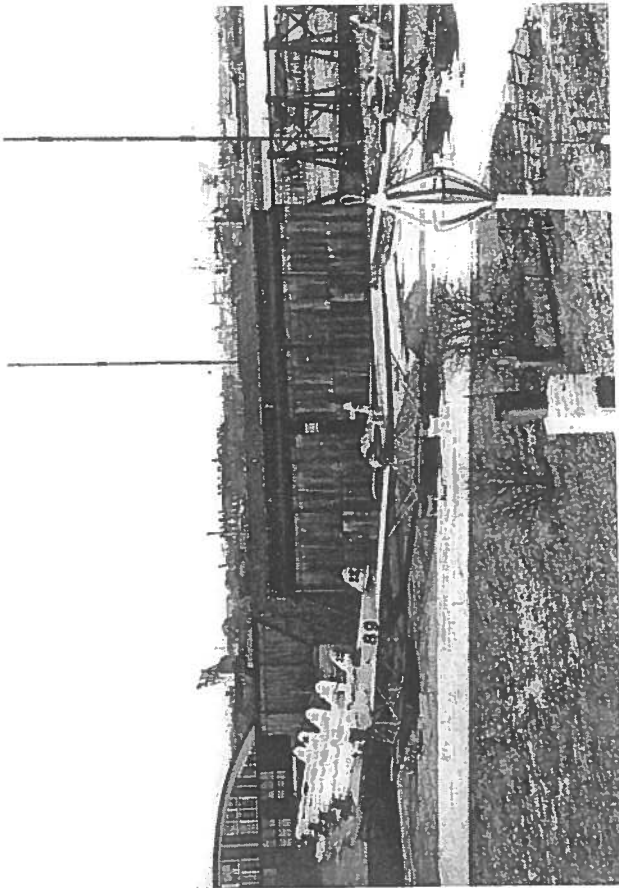
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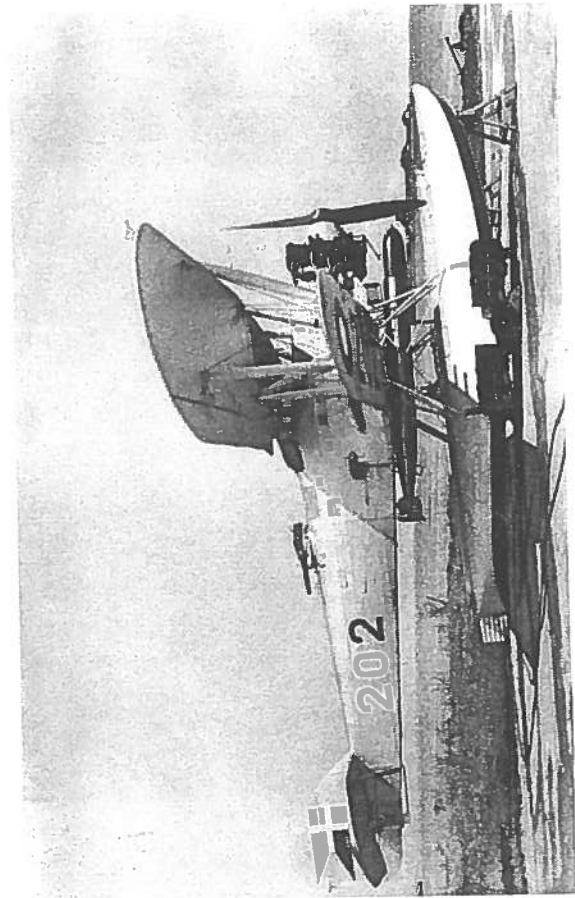
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16

Winter War Aid from the USA.

Pentti Manninen

[Editor's note: This article is an enlarged and updated version of an article first published in the 2/2006 issue of the Finnish magazine *Suomen Ilmailuhistoriallinen Lehti*. It appears here with the kind permission of the editor and author Pentti Manninen.]

The Neutrality Act and the Finnish Brewsters

The process of acquiring Brewster Model 239 fighters for the Finnish Air Force from the USA during Finnish-Soviet "Winter War" 1939-40 was exceptional in many ways. Haste and improvisation were the name of the day. The shipping of any kind of armament directly to Finnish ports was out of question and the US requirement that "neutral shipping" be used made things even more difficult. The solution was shipment by sea to Bergen in Norway, rail transportation to Trollhättan in Sweden, assembly in Sweden, and then air ferrying to Finland added to the problems to be solved. Despite these problems all Brewster fighters arrived in Finland.

Since Finland was considered a neutral country, no reasons were found to ban export arms to Finland, and the US Arms Control Commission approved the sale of the Brewster fighter to Finland on 27 December 1939. This was all perfectly legal and by the book even if a "de facto" war was going on between the Republic of Finland and the Soviet Union.

The Soviet considered this a border skirmish with rebel gangs. The Kremlin and J.V. Stalin himself had friendly relations with the Soviet-backed puppet government of the People's Republic of Finland led by Otto Wille Kuusinen, and saw no war between Finland and Soviet. So the government of O.W. Kuusinen could apply for military assistance to put down the "white-bandit" rebels.

Since the Soviet Union did not declare war, the Republic of Finland did not either. This was very fortunate for Finland as the US Johnson Act banning all armament sales to war zones would not now apply to Finland. There was "de jure" peace prevailing in the Northeast Europe.

With the arms export permission granted, the Embassy of the Republic of Finland in Washington DC subcontracted a US company, International Engineering and Inspection Corp., owned by Temple Joyce and Edwin Clark, to act as advisors for arms procurement in the US. Their first assignment was the inspection of Brewster 239. For some reasons (possibly the 50/50 ownership by the wives of Joyce and Clark was too obvious a link to their husbands) a new company, Aeronautical Accessories Corp. which was owned by Temple Joyce, Edwin Clark and W.N. Fellers (Cdr.USN ret). gradually took over all Brewster technical inspection.

W.N. Fellers represented the Aeronautical Accessories Corp. in all official correspondence between the Finnish Embassy and the Brewster Aeronautical Corp. Although correspondence has been found written by Fellers and addressed to Edwin Clark and Temple Joyce - all working in the very same premises in the 2nd floor of Finnish Embassy building - no mention was made in the letters to the Finnish Embassy about the other two partners Temple Joyce and Edwin Clark - than

their legal position as advisors to the Republic of Finland. Both were stockholders with mutual economical interest with Fellers. Their partnership was, however, most obviously known by the Finnish Military Attaché in Washington DC, Colonel Per Zilliacus. This almost illegal activity of Temple Joyce as representative of supplier (not in case of Brewster), inspector and buyer left little to the imagination, but the Finns had no other option. This was in line with the all the legal fiddling to release arms to Finland.

Because of the absence of any specific agreement between the Republic of Finland and the Aeronautical Accessories Corp regarding the inspection of the Brewster-fighters, there is no way to evaluate the quality of the inspections made by the five Aeronautical Accessories engineers based at Brewster. One can only assume that the inspection was limited to checking the manufacturer-provided lists that every airframe was shipped with the assigned parts and equipment.

A crucial point in the sales arrangement between the Republic of Finland and Brewster was the ownership of goods. No US Federal property could be exported to Finland. So the already-accepted US Navy airframes could not be part of the sale. The same was the case with any piece of equipment already paid for by the US Navy. This meant stripping out all instruments, gun sights, machine guns etc. which had been provided to the manufacturer under the US Navy contract by individual contractor. Fortunately for Finland there were available substitutes from Pioneer and Sperry; deliveries about to be shipped and intended for the Fokker D.XXI. These were taken and fitted into the Finnish Brewsters which was a benefit in that the scales were now metric.

The quality of workmanship was not closely inspected, and, if more attention had been focused on this side of the assignment, the delivery would have been delayed. This, however, might have avoided the leaking main fuel tanks and other manufacturing defects that were compensated in 1942 by the Brewster Aeronautical Corp with \$25,000 in cash.

Flight Testing in the US and Shipment

The Aeronautical Accessories was also responsible for selecting aircraft for flight testing at Roosevelt Field where the aircraft had to be taken from the Brewster Long Island (N.Y.) factory multi-storey building. Not all airframes from the Finnish batch (c/n's 18-55 and 57-62) were air tested in the US. To speed up the delivery, only three randomly selected test specimen: c/n's 19, 38, and 61 were actually test flown in the US. For these airframes, the FAA assigned civil registers NX-15695, NX-25196 and NX-15694 respectively. The other 41 Brewster 239's were planned to be test flown in Europe by pilots hired by the Brewster Company - possibly in Norway or Sweden. Brewster refused to send any of their engineering staff or test pilots to Finland.

NACA Langley Chief Test Pilot, Melvin N. Gough, was willing to test fly the Finnish Brewsters on a private contract. According to a copy of his invoice totaling \$588,50, test pilot Melvin Gough flew c/n 19 on 2 January 1940; c/n 38 on 10 and

12 February 1940, and finally c/n 61 (undated). He tested general flying qualities, performance, and the radio in-flight and guns (ground firing). After this testing, Brewster and the Republic of Finland agreed that all 44 Model 239's were up to Brewster Spec.350 and Brewster provided a 100-hour or 6 months guarantee for the work done by the Brewster Aeronautical Corp.

All Brewster 239's were crated by Dade Brothers Inc. The 88 boxes were of two types: one box (7,3 m x 1,67 m x 2,61 m) contained the fuselage, and the other (9,34 m x 1,52 m x 2,69 m) contained the wing. Both crates were identical in weight: 3130 kg.

The first 22 crates, containing 11 Brewsters, were loaded onboard the Finnish MV *Astrid Thorden*. However, this vessel was not allowed to carry arms to Finland due to US neutrality terms. The crates were all reloaded onboard the US registered SS *Mormacide* leaving for Bergen, Norway, on 13 January 1940, and arriving there on 27 January 1940. The other Brewsters were shipped on the SS *Mormacstar* (6 pcs.), SS *Southfolk* (12 pcs.), and SS *Mormacsea* (15 pcs.). They all arrived at Bergen by 13 March 1940.

Trials and Tribulations in Sweden

At Bergen, the Brewsters were loaded onto flatbed railway cars and promptly sent to Trollhättan, Sweden, for assembly at the SAAB aircraft factory. As the SAAB factory did not have a sufficient workforce to cope with this assembly work, Swedish, American, British, and Norwegian volunteers were assigned to the work. As often with volunteers, their work skills were not up to par with the work to be done.

Technical assembly problems were solved only by the arrival of Brewster assembly mechanics: Andersen, Crevaux, Dusterbeck, and Hermanson. But even then, the workforce of 25-30 assigned to Brewster assembly work was not enough due to all the technical modification orders supplied by Brewster. This slow process irritated the Americans as they witnessed nearby Italian FIAT G.50 erection teams which beat the Americans by 6 to 0. According to visiting Finnish VL Factory manager, Erkki Mäkinen, the process was slow and an additional 20 men were urgently needed, especially those with special skills as rigging the airframe, power plant, propeller, radio, and guns. The general impression by Mäkinen was: of bad or nonexistent management and unskilled workers with little motivation.

The unique undercarriage construction of Brewster Model 239 demanded hoists to be used while being erected. Special moving erection platforms had to be first constructed as no suitable equipment was available at Trollhättan. SAAB reserved most of its warm hangar space for itself and most of the left over space was occupied by the Italian FIAT crew. So Brewster engineer, R.W. Matthews, suggested that one airframe be erected as a pattern for further series erections. He would instruct with the first airframe and then assign seven Swedish mechanics as foremen for future series erection work which would start when warm floor space became available.

Now the sloppy inspection of airframes in the US was revealed. Parts did not fit into their intended places, piping was not properly installed, and wing attachment bolts were of wrong grade with too coarse a thread. Problems were so difficult to

solve that Finnish AF engineers, H. Hietarinta and Kurt Berger, were assigned to inspect alternative erection site in Göteborg. However, considering the alternatives, the SAAB premises were considered the best as additional workshop support was possibly more readily available there. In particular, the undercarriage locking modification designed by R.W. Matthews dictated staying in Trollhättan.

Against this background, it was not surprising that the first airframe c/n 20 (BW-351) was finished only by 14 February 1940. Since there was no factory test pilot available, Capt Bremer gave his permission to Lt. Karhunen to air test BW-351. Preflight tests were by Brewster representative Ray Matthews, who did two hours of ground taxiing and tested the power plant. Lt. Karhunen stepped inside the cockpit and Matthews was on the left wing root giving him last minute instructions translated by engineer Kurt Berger who was standing on the right wing root.

Not familiar with type, engine, and no previous experience of retractable under carriage and adjustable propeller, it was no surprise that Lt Karhunen barely reached 100 meters height before being forced to belly land. The overstrained power plant had leaked out all of its oil, braking one piston totally into pieces in the process. Fortunately damages to the airframe were minimal due to the snow covered airfield.

After this incident, only Brewster test pilot, R.A. Winston, was allowed to perform test flying. He arrived at the same time as the four Brewster factory mechanics (Andersen, Crevaux, Dusterbeck and Hermanson), and on 21 February 1940 started test flying with BW-352. He did all the testing before allowing Finnish pilots to make 30 minute familiarization flights. He required each Finnish pilot to have 2 hours flying experience in the Brewster before they were allowed to ferry an aircraft to Finland.

The factory mechanics helped to fill the demand for experienced airframe and power plant riggers. There was, however, a shortage of radio and armament specialists. 25 to 30 workers were assigned to the Brewster erection work, but this was not adequate. At least 20 more men were needed to speed up erection work to the planned two finished airframes per day. The SAAB works did not provide any additional men despite repeated requests by Finnish officials and by Count Sparre, who was the chief works engineer at SAAB Trollhättan. Also, additional warm floor space was denied by SAAB, but fortunately the weather was excellent so finished or partially finished airframes could be stored outside.

The motivation of the workers was not very high. Erection work meant long days without breaks. Finns were astonished by the 2 hour lunch by the French volunteers and the Swedes were close on their heels with 1.5 hour lunches. Not being under military law - as were the foreign volunteers enrolled in the Finnish AF - speeding up the work by orders was out of question. Additional afternoon coffee breaks, etc. did little to help the situation.

The test flying and ferrying to Finland caused several mishaps. The afore-mentioned incident with BW-351 was followed by BW-354 landing on its belly on 3 April due to nonlocking undercarriage. The third prang was also recorded by Winston, but Finnish records do not confirm this. Three accidents happened on 4 April 1940 at Bromma airfield, when

BW-377, BW-378, and BW-379 all were damaged when they veered off the runway during landing. BW-379 was so badly damaged that it had to be crated and shipped to Finland during the summer of 1940 for extensive repairs.

The arrival in Finland was also hazardous: On 23 March BW-367 went over at Hollola, on 11 April BW-385 turned over at Malmi and BW-383 ended on its belly, on 24 April BW-384 was damaged while landing at Malmi as was BW-357 on 30 April. And even while parked safely at Malmi, BW-394 was rammed by a DH 86B civil airliner on 27 May 1940.

Conclusions

Generally speaking the procurement of Brewster 239's fared as well as other aircraft procurement during the Winter War. The Model 239 airframe was still in development phase and many modifications and structure repairs were needed - totaling some 1000 workshop hours per airframe. This (and multiple accidents due bad airmanship by young inexperienced pilots) caused very low serviceability and it took over a year to iron out all the bugs.

Much depended on the timing with this procurement. If Finland had not been able to get approval in December 1939 for the export of the Brewsters and if these aircraft had not arrived in Norway by March 1940, many of the Brewster aircraft would have been diverted back to US. [This was the case with many of the Brewster spares, spare engines, and servicing materials that were stored at the Finnish Embassy in Washington, DC. As late as 1949, the following were found at the Finnish Embassy: 150 kilos (36 cans) light grey aircraft paint acquired in 1940 for painting of Finnish AF Brewster airframes. Some of the airframes were all over in light grey.]

Note for the modeler: The other paints acquired were: 20 gals. 118 Primer P27 Zinc Chromate; 50 pounds Pigmented Alum. RM137-1; 20 gals. 118 Dope D12F Clear; 10 gals. 118 Dope D16F Aluminized; 50 gals B Lacquer L12 Clear; 200 gals of thinners of different types. The two different type of aluminized dope were uses: one for metal surfaces and the other for the fabric covered control surfaces (ailerons, rudder and elevator). All surfaces were then varnished with clear dope - again of two different types.

A final note to those researching these old matters with Brewster 239 (and others too): What really happened was possibly not the intent even if it might look like that when viewed afterwards.

C/n	Ship from	Ferried from	Ferry pilot	Finnish AF Serial
18	USA	Sweden		
19	19.2.40	11.4.40	SSgt. Juutilainen, Ilmari	BW-387
20	13.1.40	1.3.40	Ensign Savonen, Joel	BW-353
21	13.1.40	21.3.40	Ensign Winston, Robert	BW-351
22	13.1.40	1.3.40	Ensign Lasse Lehtonen	BW-352
23	13.1.40	1.3.40	W/O. Jääskeläinen, Elias	BW-355
24	13.1.40	15.3.40	Ensign. Savonen, Joel	BW-354
25	13.1.40	1.3.40	SSgt. Virta, Kelpo	BW-356
26	13.1.40	8.3.40	SSgt. Verho, Pauli	BW-357
27	13.1.40	8.3.40	Ensign Hovi, Martti	BW-358
28	13.1.40	21.3.40	Cpl. Heikinaro, Kaarlo	BW-359
29	13.1.40	15.3.40	Ensign Inkilä, Väinö	BW-360
			Ensign Lumme, Aulis	BW-361

30	20.1.40	16.3.40	Ensign Greger (Swedish)	BW-362
31	20.1.40	16.3.40	Ensign Pastinen, Matti	BW-363
32	20.1.40	16.3.40	Ensign Suhonen, Väinö	BW-364
33	20.1.40	19.3.40	Ensign Lakio, Vilppu	BW-366
34	20.1.40	19.3.40	Ensign Elfving, Henrik	BW-365
35	20.1.40	19.3.40	Ensign Sarjamo, Urho	BW-367
36	7.2.40	21.3.40	Capt. Bremer, Väinö	BW-371
37	7.2.40	21.3.40	Cpl. Pellinen, Matti	BW-368
38	19.2.40	11.4.40	..	BW-381
39	7.2.40	5.4.40	Lt. Karhunen, Jorma	BW-372
40	7.2.40	21.3.40	Lt. Karhunen, Jorma	BW-369
41	7.2.40	21.3.40	Cpl. Ahokas, Leo	BW-370
42	7.2.40	5.4.40	Ensign Pastinen, Matti	BW-373
43	7.2.40	21.4.40	Capt. Bremer, Väinö	BW-394
44	7.2.40	5.4.40	Capt. Luukkanen, Eino	BW-375
45	7.2.40	5.4.40	Cpl. Davidsson, Martti	BW-374
46	7.2.40	12.4.40	Lt. Sarvanto, Jorma	BW-391
47	7.2.40	11.4.40	..	BW-393
48	7.2.40	5.4.40	W/O. Pyötsiä, Viktor	BW-376
49	19.2.40	11.4.40	..	BW-385
50	19.2.40	12.4.40	SSgt. Virta, Kelpo	BW-392
51	19.2.40	11.4.40	..	BW-389
52	19.2.40	12.4.40	Lt. Bremer, Aulis	BW-390
53	19.2.40	11.4.40	W/O. Pyötsiä, Viktor	BW-384
54	19.2.40	6.4.40	..	BW-380
55	19.2.40	6.4.40	Ensign. Hovi, Martti	BW-382
57	19.2.40	11.4.40	Lt. Sarvanto, Jorma	BW-386
58	19.2.40	11.4.40	Damaged in Sweden?	BW-388
59	19.2.40	13.4.40	Capt. Luukkanen, Eino	BW-378
60	19.2.40	13.4.40	Damaged in Sweden.	BW-377
61	19.2.40	11.4.40	Capt. Luukkanen, Eino	BW-383
62	19.2.40		By ship to Finland	BW-379

References

1. Form 5 (Firearms) National Firearms Act, Feb 8 1940 Application For Exemption From Payment of Transfer Tax on Colt MG-40 cal .30 and MG-53-2 cal .50 Machine Guns exported by Rep. of Finland and Brewster Aeronautical Corp. (B.A.C.). Listed B.A.C. Plane serial with corresponding Colt Serial Numbers.
2. FAA records for Brewster 239's c/n 19, 38 and 61.
3. Invoices by Melvin N. Gough.
4. Invoices by Edwin N. Clark & Temple N. Joyce (and enterprises owned fully or partially by them or having real control via bulvan person).
5. Shipping documents "RF 54 SAL/39" Barr Shipping Co.
6. Insurance documents by Switzerland General Insurance Co (NY).
7. Letter re shipping supervision work by Gebauhr & Loeser Marine Experts (NY).
8. Finnish Air Force airframe inspection documents made in 1940 in Sweden. Listing corresponding airframe equipment serial numbers (Guns, Power plant etc.).
9. Brewster Service Bulletins on Model 239 and F2A-1.
10. Individual Finnish Air Force Brewster Model 239 airframe technical documents (mainly with log books but not all).
11. Technical Damage Report and Flying Accident Report on BW-351 belly landing incident at Trollhättan on 14 Feb 1940.

Type Brewster Model 239 No. 20.

12. BW-372 airframe stored at Pensacola, MFG No.39.

13. LLv 22 Main Log Book (Military Archives).

14. Finnish Embassy in Washington DC official correspondence and bank accounts balances. Finnish Foreign Office Archive.

15. Military Attaché to Finnish Embassy in Washington DC official correspondence. Finnish Military Archive.

16. Finnish Air Force HQ correspondence with Brewster Aeronautical Corporation, ranging from December 1939 to October 1942. Finnish Military Archive

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Captions to the photos on pages 70-72. (All photos via the author except as noted.)

1. The long journey to Finland started for the Brewster Model 239's from the workshops of Dade Brothers airframe craters at Mineola in New York. This is c/n 47 which can be verified as written on the end of the "tool box" under the Dade Brothers photo stamp. (Cradle of Aviation Museum)

2. Dade Brothers trucks ferried the first crated airframes on 3 January 1940 to Pier 33 East River in New York where these boxes 2 (wing of c/n 20), 6 (wing of c/n 22), 1 (fuselage of c/n 20) and 3 (fuselage of c/n 21) were hoisted onboard Finnish MV *Astrid Thorden*. (Cradle of Aviation Museum)

3. Brewster Model 239 c/n 61 was one of three air tested in the USA with civil register. (Cradle of Aviation Museum)

4. The Brewster airframes were attached to the crating boxes via steel frames with pivot enabling the box to buckle without causing damage to the airframe. (Cradle of Aviation Museum)

5. The Brewster 239 crates on Pier 33 South Street (N.Y.) after off loading from MV *Astrid Thorden*. The crates were ferried by barges to Jersey City Pier D and reloaded onboard SS *Mormactide*. (via Pressens Bild)

6. Finnish pilots inspecting BW-360 – BW-369 Brewsters in the SAAB hanger at Trollhättan. Second from the left is Ensign M. Pastinen.

7. Five Finnish pilots in March 1940 Trollhättan. From the left: three unidentified then Ensign M. Pastinen and Corporal L, Narkaus.

8. BW-632 at Trollhättan. Flown to Finland on 16 March 1940 by Swedish volunteer Ensign Gert Greger. Note the empty crates in the background.

9. Brewster (most likely BW-360) being prepared for flight to Finland in March 1940. The Finnish national insignia has been over painted with water-soluble paint.

10. BW-351 on its belly after test flight by Lt Karhunen on 14 February 1940 at Trollhättan.

11. BW-354 on its belly after undercarriage malfunction on 3 April 1940 at Trollhättan.

12. Accidents to air ferried Brewsters continued in Finland. Here DH 86B OH-IPA rammed BW-394 on 27 May 1940 at Malmi airfield. Surprisingly BW-394 was rebuilt but DH 86B was total write off. (K-SIM)

Ciel de Guerre

TMA SARL, 75 Rue Claude Decaen, Paris 75012, France. E-Mail: airmagazine@wanadoo.fr. 4 issues per year. Europe: 60 €. Rest of World: 70€.



La Chasse au Combat: Mai-Juin 1940 (2^e partie). Ciel de Guerre #09. 84 pages, A-4 size, soft bound. (juin/juillet/août 2006) €14 plus €3/€5/€8 postage (France/Europe/Rest of World).

This issue is divided into four sections: (1) Les Chasseurs de la RAF; (2) Les Chasseur Polonais en France en 1940; (3) Les Pilotes Tchèques en France; and (4) Combats contra la Regia Aeronautica. At first, I thought these topics might not add much to what has already be published (except maybe for the last), but was I pleasantly surprised. Each section is chock full of new (to this reviewer) photos, informative tables, and beautiful multi-view color illustrations of familiar and unfamiliar individual aircraft.

Let begin with the section on the RAF in France. I thought I had a pretty good grasp of this subject, but imagine my surprise when I saw the three-page table listing almost 180 victories by the RAF between 10 and 14 May. (I wish my French was better so I could figure out why this table stops at 14 May.) Beside this informative table this section includes 34 pages, one map, 39 photos, 14 color side-view drawings [Gladiator (2), Roc, Skua, Spitfire (4), Hurricane (3), Blenheim, Defiant (2)], and three color 3-view drawings [Hurricane (2) & Spitfire].

A major portion of my library is devoted to the Polish Air Force, with a number of books on the PAF in France. However, I found the section on the Polish AF in France added much to my knowledge of this subject. Included in its 12 pages are 26 photos, many tables (Again, my French illiteracy prevents me from getting the most from these tables.), 3 color side-view drawings [MS 406 (2) &

FK-58], a 2-view color drawing [MS 406 (the same a/c of Kazimierz Bursztyn that was featured as a 4-view color drawing in Ailes Françaises 1939-1940 Vol. 3)], and a 4-view color drawing [Caudron 714].

The section of Czechoslovak airmen en France is mostly untouched territory: 13 pages, 33 photos, 12 color side-view drawings [4 MS 406, 3 MB 152, 4 Curtiss H-75A], one 3-view color drawings [Curtiss H-75A]. Unlike the Polish a/c, the Czechoslovak airmen were members of French units and their aircraft carried no insignia identifying the airmen's nationality. Among the list of ten Czechoslovak "aces" are such unfamiliar names as Alois Vasatko (3 solo plus 9 assisted victories confirmed) and 2 solo and 9 assisted victories confirmed).

The 8-page section on the resistance to the Regia Aeronautica is pictorially disappointing since the illustrations are all of non-French a/c [6 photos and 5 side-view drawings [Luftwaffe Bf 110 (2), Italian CR.42 (2) & a Breda 88].

Most appreciated by the modeler are the 4-view drawings that show both the top and bottom views taking the guesswork out camouflage patterns and placement of identification codes.

Ciel de Guerre #9 is an excellent addition to any library that includes coverage of the exploits of the Polish and Czechoslovakian airmen in the Battle for France.

Review copy provided by Jose Fernandez of TMA.

[Editorial note: As serendipity would have it, while putting the final touches on an article by Antonio Sapienza on the Caproni AP-1 in Paraguay, I received a copy of the Newsletter of IPMS-UK's Italian SIG that contained an article on the AP-1 in Paraguay and El Salvador.]

The Caproni AP-1 in Paraguay

Antonio Sapienza

In 1936, after the end of the Chaco War and during the government of Colonel Rafael Franco, the Paraguayan Air Arm (AAP) was reorganized and almost 60 new airplanes were ordered from Italy. Among these were 21 Caproni AP-1 and 5 Caproni AP-11dro. A *coup d'état* reduced the number of planes for the Colonel's project and an attempt was made to cancel the contract. Fortunately for the Air Arm, it was not possible to cancel all the aircraft and in the end 20 planes were bought including 7 Caproni AP-1.

The Caproni AP-1 arrived in 1939 and were integrated into the Second Fighter Squadron of the Paraguayan Air Arm. Although its main role was assault and dive bombing. The serial numbers of the seven Caproni AP-1's were 2-1, 2-3, 2-5, 2-7, 2-9, 2-11, 2-13. Only three were operational in 1947, and participated in the Armed Forces Revolution loyal to President Morínigo. The AP-1 was retired from active service in 1949.

Fortunately for those who love Paraguayan aviation, a 1/72-scale resin kit of excellent quality was released by the VAMI. [Ed: This article first appeared in 1994. I don't know if the VAMI kit is still available.] The only detail that must be added to the model is the replacement of the wheels with those used by the Paraguayan Air Arm.

The Paraguayan AP-1 displays the typical Italian camouflage of the 1930s. The upper surfaces were painted in dark green (HU116) with khaki splotches (HU026) and the lower surfaces were in light gray HU147). The front of the engine cowling was bronze (HU055). The Paraguayan roundels were painted on the four wing positions and the three colors of the Paraguayan flag appeared on the rudder with a yellow star on the white band. The serial numbers, in large black letters, were applied on the rear part of the fuselage. The three-bladed propeller was metallic in color (HU011).

[Ed: This article, along with the drawing of the Paraguayan AP-1 '25' first appeared in the December 1994 edition of the late lamented Paraguayan magazine "Modelo Terapia" It is reproduced here with the permission of their editor and author, Antonio Sapienza, The translation is by Nancy Sharrock.]

The Caproni AP.1 in Latin America

Text by Jeremy Hall and drawings by Nils Treichel,

[Editor's note: This article appeared in Jeremy Hall's IPMS-UK Italian SIG Newsletter December 2005 March 2006. It is reproduced here with Jeremy's permission. If you're interested in the Italian SIG, contact Jeremy Hall, 25 Nene Crescent, Oakham, Rutland, UK. E-Mail: SIG_Italia@hotmail.com]

Nils Treichel, in addition to finding time to run the Finland SIG is also a member of several others [Ed: including the SAFCH.], and he even makes models too (How does he do it!?!). He provided an excellent Caproni AP.1, the Legato kit, in

Paraguayan markings for the assemblage at Telford, and here are the details of the colour scheme, replete with "Stella" on the rudder, together with one for an El Salvadorian operated AP .1.

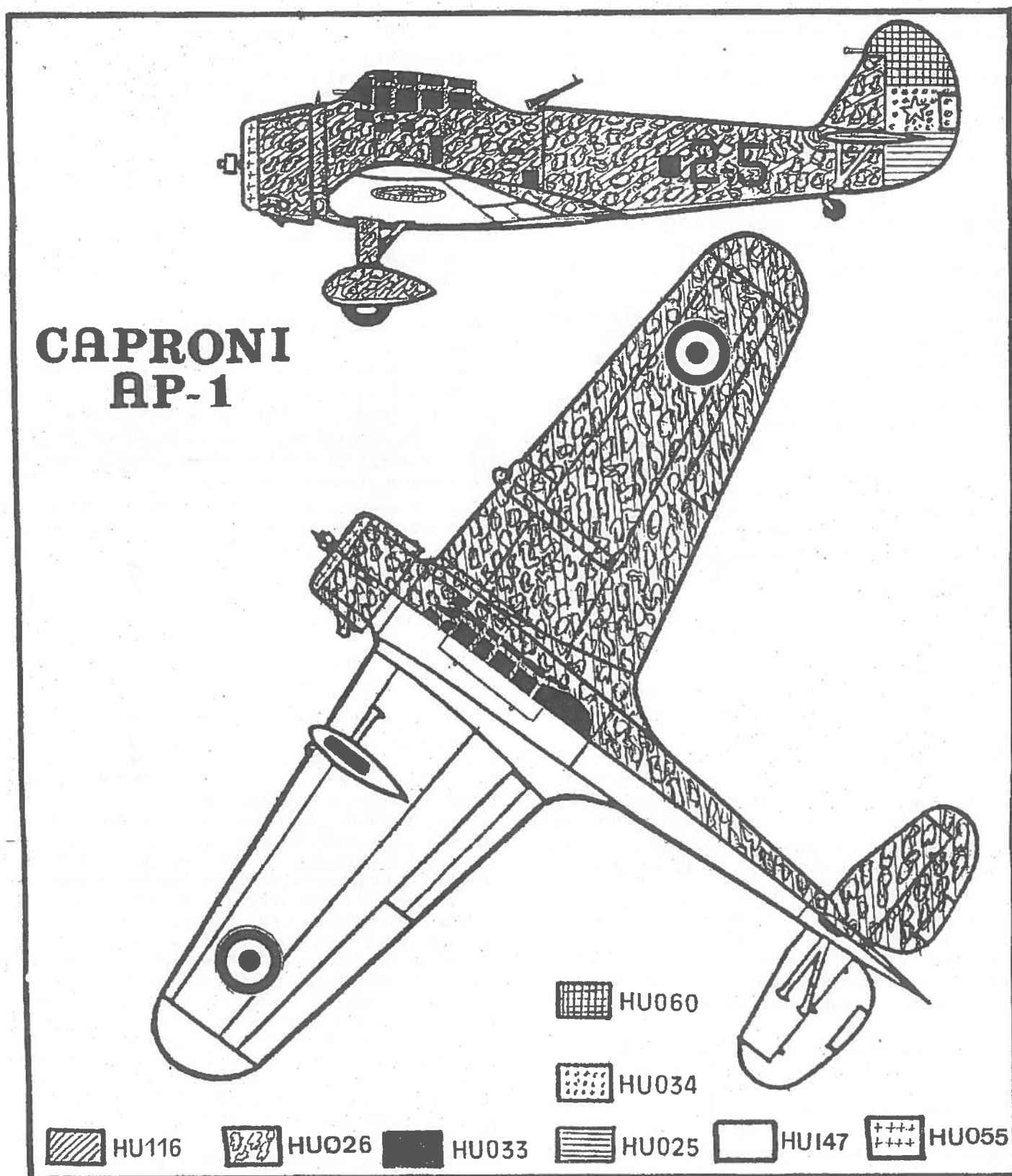
Going back some time now, before even the most obscure and unheralded aircraft was available as a resin kit, Richard West (former 'capo' of the sadly dormant Spanish Civil War SIG) sent me details of how to construct a somewhat Frankensteinian AP.1 using the parts of a quintet of other kits, (mainly Aichi Val, Bristol Beaufighter & Fairey Swordfish, with a bit of Bristol Bulldog & an SM81 cowling). An entertaining brew, but I reckon the Legato kit is probably less hassle. (Only probably though...)

The AP.1 itself was designed by Ing. Pallavicino and built at the Caproni Bergamaschi works in 1934 as a single seat fighter, subsequently being developed into a two-seat reconnaissance and attack plane. In this guise it was powered by a 650-hp Alfa 126 R.C. 34 radial engine. Maximum speed was 242 mph at 13,000 ft, ceiling was 26,000 ft and range 930 miles. A few were tested in the Spanish Civil War, with inconclusive results. Armament consisted of two machine guns in the wings and a 3rd in the rear cockpit. Up to 880 lbs of bombs could be carried. Constructed in 1934-35 they entered service in 1935 and served with 5 & 50 *stormo assalto*. They were withdrawn from frontline service and assigned to training duties in 1938. Production numbers are hard to come by, but the Regia Aeronautica seem to have had about 40. A sales drive to South America resulted in Paraguay acquiring 7 and 4 were shipped to El Salvador, apparently in exchange for coffee.

[Editor's Note: In his book, *Central American and Caibbean Air Forces*, Dan Hagedorn has this to say about the AP-1 in El Salvador.]

"In August 1938, the *Cuerpo* ordered its first modern monoplane combat aircraft, a tangible response to the NA-16s acquired by neighbouring, rival Honduras, in the form of four Bergamaschi-Caproni A.P.1 attack aircraft, these being actually delivered in December and given serials 22 to 25. All two-seat versions, three were equipped with racks for ten 30-lb light bombs, while the fourth, for some reason, had racks "for a great number" of 2.5-lb bombs. One was immediately crashed by the Italian instructor pilot who accompanied the aircraft, Capt Armando Chipolli (the pilot's name has also been given as Arnaldo Dipola), but was replaced in January 1939 by the manufacturer with a fifth aircraft (believed given the serial of the crashed aircraft). Flown intensively and with acquired Italian abandon, the service enjoyed the new, powerful mounts very much, but their wooden construction soon succumbed to the tropical environment and, by the end of World War Two, a US observer reported three of them in a hangar "on blocks with piles of sawdust from termites under the wings." By June 1943, the last year in which the A.P.s saw much use following delivery of far more efficient US Lend-Lease aircraft, they had flown 213 hrs (FAS 22), 229 hrs (FAS 23), 124.15 hrs (FAS 24), and 189.50 hrs (FAS 25) respectively. The *FAS* continued to count the three surviving aircraft on strength, despite their condition, as late as 5 May 1948!"

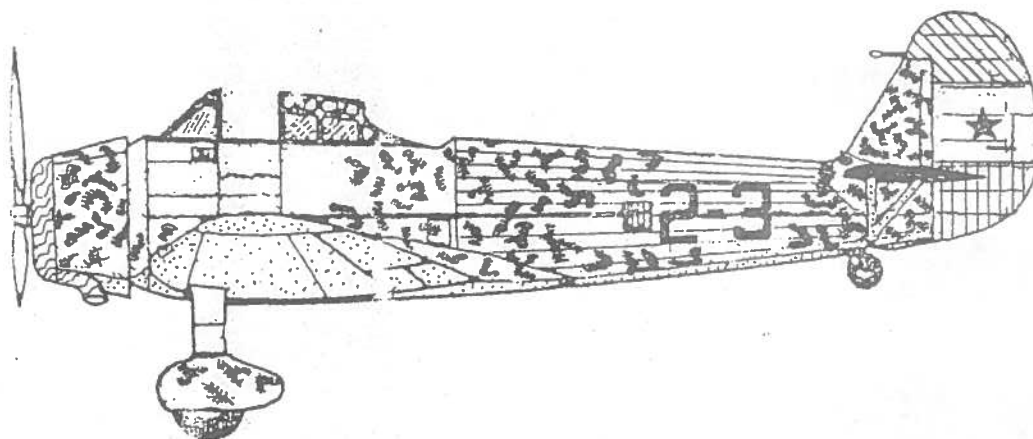
In addition there is a photo captioned: "Prized possessions, s/n 24 is partially protected from the elements in June 1943. The leading edge of the cowl was painted red, but the remainder was highly polished natural metal."



2da. Escuadrilla de Caza, Arma Aerea Paraguaya, 1939-1949

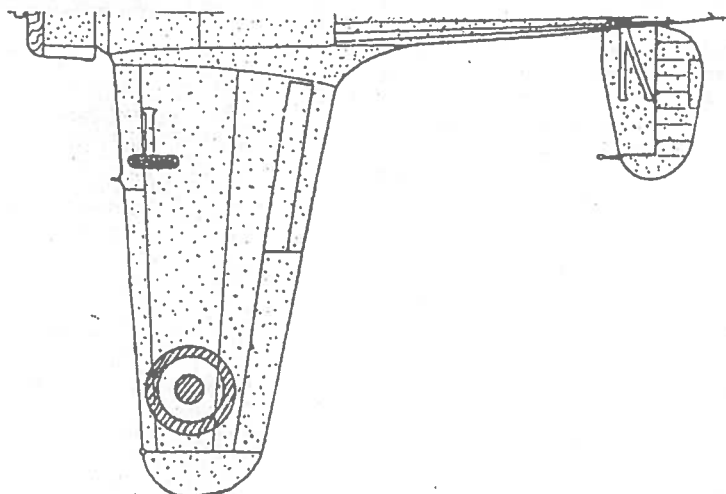
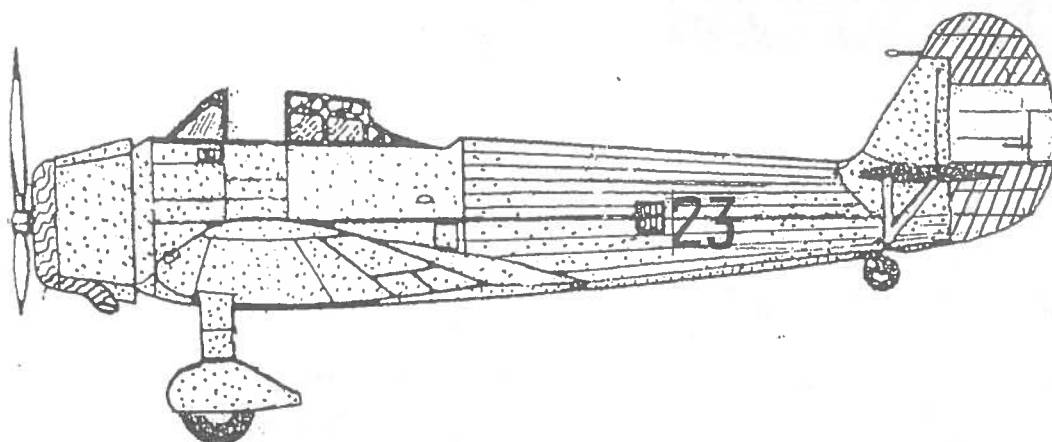
(First publisher in the December 1994 issue of Modelo Terapia)

Caproni AP-1



2º Grupo de Caza, Paraguayan Air Force, AB Nu Guazu, early 1940s

Sand with green splotches on upper and light grey on under surfaces; front of cowling and exhaust rusted metal. Rudder striped blue, white, red (top) with yellow five-pointed star on the white field; roundels in the same colors with red outer beneath wings, black serial on fuselage (other a/c were 2.1, .5, .7, .9, .11 and .13)



El Salvadorian Cuerpo de Aviacion, AB Ilopango, 1939

Natural metal resp. aluminum paint over all; cowling front is said to be red, though this can also be the discolored exhaust collector ring. Rudder stripes are blue-white-blue as well as the roundels beneath and below the wings. The serial is black; other numbers are 22, 24 and 25.

(These drawings first appeared in the Aug/Sept 2005 issue of *The Italian Job*, the Newsletter of the IPMS-UK Italian SIG)



Czechoslovak Prototypes 1938, Vol.1. Aero A-204, A-304, & A-300; by Pavel Kučera. Published by Jiří Jakob, Nevojič 144, 685 01 Bucovice, Czech Republic. E-mail: jakob@razdva.cz. Softbound. 96 A-4 pages.

This is the first volume I've seen from the new Czech series, and I am very impressed. Most importantly, the text is printed in parallel columns with Czech on one side of the page and English on the other side of the page. This way, the reader is assured of a complete translation, not just a "summary" that usually leaves the reader wishing for more. The book is illustrated with copious photos, beautiful color drawings, and excellent 1/72-scale multi-view drawings.

Aero A-204: In 1935, the *Československých státních aerolinií* (CSA - Czechoslovak State Airlines) requested the Aero company of Prague Vysočany to design a twin-engine monoplane with retractable undercarriage to carry eight passengers and a crew of two. The resulting prototype A-204 was of advanced aerodynamic design, but the construction was the traditional metal tube fuselage with wooden fairing and fabric covering and wooded wings. Development of the only prototype was so prolonged by disagreements between Aero and CSA that by the time route-proving trials began in 1938 the A-204 was obsolete by contemporary standards. The Ministerstvo národní obrany (MNO - Ministry of National Defense) considered adapting the prototype for the role of reconnaissance/light bomber. The prototype was even fitted with a mockup of a dorsal turret, but this came to nothing with the German occupation. Coverage of the A-204 consists of 32 pages, 36 photos; one color 3-view drawing; one color side-view drawing; and 3 pages of 1/72-scale multi-view drawings. The A-204 was very attractive with cream-colored wings and green fuselage and trim with the titles "*Československých státních aerolinií*" and the CSA logo were painted above the passenger windows.

Aero A-304: This was the only aircraft described in this book that attained serial production. It was a fully-militarized version of the

A-204 with more powerful engines, dorsal and ventral machine-gun positions, forward-firing armament, and provision for carrying bombs. The first prototype first flew before the German occupation of Czechoslovakia. Production continued in the Bohemian-Moravian protectorate for what the book refers to as "uninvited users". In all 30 A-304 were built (including the prototype) for use, with all military equipment removed, in German training schools. At least found in way to the Bulgarian Air Force. Coverage of the A-304 includes 26 pages, 23 photos, one color 3-view drawing (in Czechoslovak markings, code 'S 19'), 3 color side-view drawings [Bulgarian (1) & Luftwaffe (2)], and 3 pages of 1/72-multi-view scale drawings.

A-300: This was an attractive bomber fully up to the contemporary aerodynamic styling of the times, but still with the time-honored but obsolete mixed metal-and-wood construction. The dorsal turret was fully retractable, the ventral gun tunnel, when not in use, was covered as the present an unbroken outline to the fuselage underbody, and the streamlines nose glazing did away with the "turret" used on the license-produced MB-200s. Thus the depth of the fuselage was reduced to that needed to house the vertically-stowed bombs. Only one prototype was built and its fate under German occupation is unknown. The A-300 coverage consists of 28 pages, 22 photos, one color 3-view drawings (in Czechoslovak markings), one color side-view drawing ('S-5'), 4 pages of 1/72-scale drawings.

For the modeler: Planet Models has announced a 1/72-scale resin kit of the A-300, and there once was a 1/72-scale vacuform kit of the A-300 by MPM.]

Czechoslovak Prototypes 1938, Vol. 1 is an excellent book and is a must for anyone interested in the Czechoslovak Air Force and its aircraft. It is also highly recommended for anyone interested in the development of military aircraft in the period immediately prior to WWII.

[Editor's comment: The English translation is not very good. In many places, the readers will have to spend much effort trying to figure out what is going on. This should not deter the true enthusiast, but it sure is frustrating. I'll never understand why publishers in Eastern Europe do not use a native English-speaking enthusiast edit their translations. I am sure that there are many people out there who would be more than eager to edit a translation in exchange for a copy of the book. However, in the case of this book, a knowledge of the Czech language would be useful.]

Other volumes available in this series include: Letov S-328 (Vols. 1 and 2), and Avia BH-33.. The next volume of *Czechoslovak Prototypes* will cover the Praga E-51 (probably the most attractive aircraft designed in pre-WWII Czechoslovakia), Letov Š-50 (probably the least attractive aircraft designed in pre-WWII Czechoslovakia), and Avia B-158. (an unattractive, but business-like looking aircraft).

Review copy provided by SAFCH member Karel Marcel of the Czech Republic.

Now available from McFarland & Company Publishers (www.mcfarlandpub.com), **The Dutch Naval Air Force Against Japan: The Defense of the Netherlands East Indies 1941-1942** by author Tom Womack, is the first-ever English language text to provide a complete overview of the naval air

campaign that took place in the former Netherlands East Indies (now Indonesia) following Japan's attack on Pearl Harbor in December 1941. Although Nazi Germany overran and occupied Holland in May 1940, Dutch military forces numbering nearly 100,000 men remained free in that country's vast Pacific colonies for another 18 months. From December 1941 – March 1942 these forces fought a heroic, although hopeless, defensive campaign against invading Japanese forces.

At the heart of the Dutch defenses was the Royal Netherlands Naval Air Service, or Marine Luchtvaart Dienst (MLD), which operated 175 seaplanes of various domestic and foreign design. But with Holland occupied, the MLD was isolated and cut off from its traditional source of personnel, equipment and spare parts. Worse yet, its most numerous front-line aircraft – the Dornier Do. 24 flying boat – had been designed and manufactured specifically for the Dutch by their current enemy in Germany, making them extremely difficult to maintain. Despite these obstacles, the MLD unhesitatingly entered into a savage war of self-preservation lasting just 91 days that neither its personnel nor equipment had the remotest possibility of winning. In the face of overwhelming Japanese strength, the Dutch lost 75-percent of their aircraft, 50-percent of their military personnel...and most important...a 300-year-old colonial empire.

Although few realize it today, in 1940 the Netherlands possessed the world's third largest empire behind Great Britain and France. A nation of seven million Dutchmen ruled over 100-million Indonesians half a world away. In the Netherlands East Indies themselves, just 300,000 Europeans oversaw a vast empire noted for being one of the world's largest suppliers of oil. Yet it was an empire built in the age of wooden ships, which in 1941, the Dutch had neither the economic nor military might to retain in the face of a determined enemy. After a 20-year build-up to war, this enemy came in the form of Imperial Japan, which invaded the Dutch colony following the attack on Pearl Harbor in a desperate bid for oil in order to continue its decade-long war on mainland China.

The product of 11 years of in-depth research, *The Dutch Naval Air Force Against Japan: The Defense of the Netherlands East Indies 1941-1942* draws upon more than 70 Dutch, English and Japanese language sources to tell for the first time in English the most complete story of the MLD's heroic fight against Japan aggression. It is a gripping story of immense bravery and stubborn determination by a tiny, yet extremely loyal, Allied nation that deserves to be told.

Book Excerpt 1

The MLD was a relatively small force within the KM when Germany invaded Holland in May 1940. Although funds had been authorized for increased personnel and new planes, the German invasion completely demolished a build-up of the naval air squadron in the Netherlands East Indies, where the bulk of the KM and MLD had traditionally been based. As a result, newly revived Dutch efforts to reinforce military strength in the NEI and guard against a feared Japanese attack were completely disrupted.

As a result, the East Indies Naval Squadron had to turn to other countries for assistance in order to continue the build-up. However, all branches of the East Indies military experienced continuing problems in these efforts. Germany had occupied

most of Europe while Britain was fighting for its very survival and had no manufacturing capacity to spare for the Dutch. This left only the United States as a reliable source for heavy weapons, ammunition, large ships, aircraft and other military supplies, such as radio equipment, sights and related specialized equipment.

Unfortunately, the U.S. government initially proved hesitant to provide the Dutch with any kind of military support, modern weapons in particular. It feared the Dutch would follow the "French Model" in Indochina. Following the fall of France in June 1940, the Japanese placed intense pressure on the colony's government, which eventually allowed Japan's military to take *de facto* control of the territory. With Japan putting similar pressure on the colonial government of Governor-General Tjarda van Starkenborgh Stachouwer, the United States feared the Dutch would also bow to the pressure, wasting valuable resources that were needed for its own military build-up.

But while the Vichy French government actively collaborated with Nazi Germany, the Netherlands' Queen Wilhelmina escaped to London and formed a government-in-exile that would oversee Dutch efforts to continue fighting. With final say over all colonial decisions, this body played a key role in thwarting Japanese demands for greater economic and political control in the East Indies. And as Governor-General Starkenborgh's government demonstrated its resolve to remain independent of Japanese control, the United States Government proved more willing to support the Dutch East Indies militarily.

As these restrictions loosened, the MLD proved particularly successful in obtaining aircraft and equipment from the United States. Although its own military was in the midst of a major build-up prior to the Japanese attack on Pearl Harbor, the United States Navy did not consider reconnaissance aircraft to be a top priority. This left the Consolidated and Sikorski plants free to fill Dutch orders without reducing American military demands. However, many of the aircraft the Dutch purchased still failed to arrive before the fall of the East Indies.

Book Excerpt 2

Meanwhile, staging through the southern Philippines, Borneo and Celebes, the first nine Catalinas of PatWing 10 arrived over Soerabaja on December 20. Despite staging through Dutch territory on the trip down, no one had bothered to inform authorities on Java as to the time of their arrival. As the PBYS flew over the naval base in formation, sirens sounded all over the city and the Dutch put out an air raid alert and notified nearby airfields.

After briefly taking fire from Dutch AA, the planes set down in the channel leading to Morokrempangan. However, the pilots did not realize that the channel was very shallow and inundated with mudflats. This made it extremely easy to run aground if one did not know the harbor, or deviated from the center of the channel, which was clearly marked with buoys. As a result, five of the American PBYS ran aground shortly after putting down. A tenth PBY from Balikpapan landed safely the following day.

In total, PatWing 10 brought ten PBYS, two J2F "Ducks," four OS2U "Kingfishers" and one SOC "Seagull" utility plane south to Java in its evacuation of the Philippines. In addition, the USN added four seaplane tenders, which like the GM vessels would offer tremendous flexibility for

operations across the East Indies. But despite the large percentage of aircrews brought out aboard the seaplanes and tenders, PatWing 10 left some 500 ground personnel behind. With no way to evacuate them, the majority of these men were captured when the Philippines fell.

Ashore, the men of PatWing 10 found the MLD personnel at Morokrempangan to be extremely generous. The Dutch made available the tremendous resources offered by the base, including its comprehensive machine shops, hangars and other facilities. Still free from air attack at that time, the seaplane base provided an excellent opportunity to service and overhaul the planes, many of which had not been out of the water since the outbreak of hostilities.

During their stay at Morokrempangan, the American enlisted men and NCOs were quartered in an empty hangar on the seaplane base. Some officers lived in regular quarters on base, but most were housed at the Oranje Hotel in Soerabaja. After their tour in the Philippines, the Americans found Soerabaja to be a welcome respite. Not only did the Dutch serve mess four times a day, but there was always plenty of beer. In addition, the Dutch offered a rest camp at Tretes, high in the mountains of Central Java. A prewar resort, the Commodore Hotel made an excellent rest facility.

Although enamored with Soerabaja, the stay at Morokrempangan was brief for many of the new arrivals. On December 23-24, eight PatWing 10 PBYS left the base in two four-plane sections, bound for Ambon where they joined the PBYS of GVT.17. There, Captain Wagner established his HQ and began reconnaissance operations over the northern and eastern parts of the archipelago.

Book Excerpt 3

The mission's operational plan called for GVT.2 to depart Lake Tondano at 0200 on the 23rd. GVT.5—which had remained at Talisei due to the inadequate facilities at Lake Tondano—would follow 30 minutes later. The altitude, airspeeds and respective courses of the two squadrons were coordinated so GVT.5 would arrive over Davao five minutes ahead of GVT.2. The two squadrons would then attack in separate waves. However, the slowness of fueling and arming the seaplanes at Kalkas delayed their departure, so GVT.2 did not lift off the water until 0300.

According to plan, GVT.5 followed 30 minutes later. The Dorniers of GVT.5 formed up about a mile north of Talisei and set a course for Davao at an altitude of 13,000 feet. Although Lieutenant Burgerhout aboard X-30 commanded GVT.5, his most experienced bombardier was the pilot of X-26. Because of this, X-26 assumed the lead, with X-27 trailing slightly behind to port and X-30 to starboard in a tight V formation. Prior to takeoff, Burgerhout carefully briefed his flight crews; they were to execute their bomb runs at all costs, while the pilots of the trailing planes were not to drop their bombs until they saw X-26 do so. They were to scatter only if attacked by Japanese fighters.

Although the squadron's aircrews were inexperienced in formation flight at night, the mission started well. They initially encountered calm seas, moderate winds from the east and scattered clouds that allowed the pilots to retain visual contact in the moonlight. However, north of Tahoena Island, GVT.5 encountered strong headwinds and heavy clouds that plunged the sky into darkness. X-30 quickly dropped back out of sight, and X-26 soon followed.

Unable to see the water or each other, all three planes were forced to proceed on instruments independently. Approximately 20 miles north of the Kawio Islands, the wind died down around 0500, and the crewmen could see small patches of sea as visibility improved. Just before 0600, the pilot of X-27, Ensign F.W.J. Sürink, sighted X-30 north of Tanica Point, and the two planes formed up. However, there was still no sign of X-26, and they continued on alone.

X-27 and X-30 arrived over Davao at 0600 and found the harbor full of shipping, including both warships and merchant vessels. Initially, AA fire from shore batteries was light, but quickly intensified as the Dorniers set up their attack. X-27 dropped her bombs on a group of large seaplanes moored near the beach and claimed to have left many wrecked or burning. These were nine Kawanishi H6K "Mavis" flying boats belonging to the Toko Air Wing, which had arrived from Palau on December 21. X-30 dropped her six 440-pound bombs on a large warehouse complex, leaving its warehouses and quays in a mass of flames nearly 1,000 feet in diameter.

X-27 was then bracketed by a barrage of flak and suffered damage to her starboard engine, which developed a severe oil leak and soon quit. Without the power of her third engine, X-27 quickly fell behind X-30 as both Dutch seaplanes flew over the harbor and turned over Davao to evade the AA fire, which was now becoming very heavy. At this point, X-27 encountered a number of Japanese floatplanes flying a CAP over the harbor.

With the departure of Chitose and Mizuho to Palau for refueling, the primary air defenses for Davao Harbor now rested with the air group from the seaplane tender Sanuki Maru. Upon dropping anchor in Malalang Bay on December 21, her eight "Pete" floatplanes immediately began flying CAP and A/S missions over those ships still remaining in the bay. Although four floatplanes were on patrol over Davao that morning, only two "Petes" were in position to intercept the MLD aircraft.

Even then, one apparently could not reach the Dutch planes' altitude and thus remained some 2,000-3,000 feet below throughout the subsequent air fight. However, the second "Pete" hung on its propeller and climbed quickly. These were likely aircraft II-B-04 and II-B-06, which later reported shooting down two Dutch flying boats that day. As the Japanese closed on the Dornier from astern, the rear gunner signaled the letter "J" to the rest of the crew to alert them.

There was no time for anything else. The pilot of II-B-04 made three aggressive passes on X-27, rupturing her hull and fuel tanks, allowing fuel to pour into compartments 3, 4 and 5. For his troubles, the rear gunner was also seriously wounded in the leg before the "Pete" disappeared. The dorsal gunner claimed to have shot it down, but this is unconfirmed.

X-30's gunners also claimed to have shot down a Japanese floatplane on the way out of the harbor. But since II-B-04 was the only Japanese aircraft to see action that day, it can be safely assumed that this was the same plane. Although II-B-04 returned to Sanuki Maru, the "Pete" overturned and capsized while landing due to a large hole in its centerline float. Although Japanese records officially list her as an operational loss, the real reason can almost certainly be attributed to damage suffered in her action with X-27 and X-30 over the harbor.

Aviation History Colouring Book

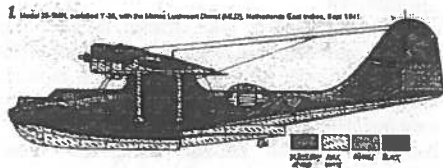
Ian K. Baker, 31A Mercer St., Queenscliff, VIC 3225, Australia. Booklets are obtainable by mail order to anywhere direct from Ian Baker. Prices vary, most being around A\$10-A\$15 within Australia. Many previous issues still available. Booklets are also stocked by several specialist bookshops and hobby shops. Find them on the Internet. USA: M&M Models (Illinois). UK & Europe: Mushroom Model Publications (Herts). NZ: NZ Models (Invercargill).

Catalina Camouflage Collection, AVHC #57.

In this volume, Ian Baker presents drawings of 21 Catalinas (2 NEI, the first RAF Cat, 2 RAF Far East, 3 RNZAF, 2 RAAF, 6 USN, 1 French Aeronavale, & 2 USSR). Each scheme is meticulously researched and the reasoning behind the choice of colors, based on b&w photos, and other sources, is carefully explained. For example, the colors called "Mud" and "Milk White" used by Dutch East Indies Cats, are described thus: "Fortunately, a colour photo of Y-38 and Y-39 survives. It was taken at the factory in 1941, probably at the time of hand-over to the MLD. Although a little over exposed, or perhaps just washed-out with the passage of time, the dark blue grey factory-applied camouflage is unmistakable. This is important, as what we see in that photo must have been the actual colour of DUCO 83.2784202 the proprietary name for which was 'Mud'. It just happens that was not the MLD name for the colour. RVB Burgerhout made the connection between dark blue grey and Mud in a Small Air Forces Observer article back in 1984, a detail which AHCH repeated in #21 (the early mini-monograph on the Domier Do24).

"In fact, that dark blue grey was closely similar to the British colour Extra Dark Sea Grey, perhaps just slightly darker and bluer when new but one can well imagine there would have been a steady rate of fading in a tropical climate, as with Extra Dark Sea Grey. The FS 595a/b colour 36099 is a good match for Extra Dark Sea Grey and it was to 36099 that recent authoritative sources have pointed for a good match for Donkerblauwgrijs.

"A good source has said that Catalinas such as Y38 came with 'white' undersides. True, 'white' may be the literal translation of Wit but, on the face of it, the description 'white' could be misleading for the DUCO colour with the proprietary name 'Milk White' was not simply white. In fact, for the purposes of description, it might be likened to a paler version of the British colour Sky. This is the reason for it having previously been described as 'light grey-green'. [See the COLOUR NOTES section later in this booklet for further details.]"



Under the title "Some More Updates & Oddities" are: 'Those Extraordinary Hurricane Guns' one page including 2 photos of a Hurricane

with externally-mounted cannon above the wings and 'Large White Numbers on the Sides of Hawaiian USAAF Fighters' one page including one photo (P-40B). There is a 2 -page discussion of "RNZAF WW.2 Colours" 2 pages, and "A Few Words about 'Weathering'" one page with some perceptive comments about the weathering of models, e.g. "This writer is inclined to the (purely personal) view that a few half-hearted touches of weathering can sometimes result in an appearance *less* realistic than none at all. But if one is producing a diorama, even a limited diorama effect such as a realistic base for the model, the consideration and planning for weathering becomes mandatory, doesn't it?"

The final comment (applicable to all AHCB volumes) belongs to Ian: "The content may well assist many readers to assess the worth of certain information they may have encountered elsewhere. Whether it will settle many arguments remains to be seen."

Colour Cards Sets

As they say on the Monty Python show: "Now for something different." Ian Baker has released two packets of color chips containing a total of 25 "carefully researched, hand-mixed and matched" 100 mm by 50 mm cards. The best description of these chips is by Ian:

"All the colours seen here have been matched very thoughtfully and with much care, after reference to a mix of various old samples of original colour, colour standards and the most authoritative colour standard replications, along with consideration of stated colour notations of various researchers and historians. Even so, all the colours on these cards should be treated by modellers and artists as indicative only.

"It is sensible to avoid being too dogmatic about colours of times past, especially wartime ones, for several very good reasons. Recollections of maintenance unit painters repeatedly relate how their guiding principle, in times of pressure, was always to get the job done using whatever was about right and available. Using up old camouflage paint stocks before opening a new batch was a frequent requirement in virtually any factory or MU of any air force. Artists and model makers seeking realism, perhaps particularly modellers creating dioramas, would be well advised to bear in mind the effects on the appearance of colours seen on these cards from fading exposed painted surfaces, together with the effects of oil stains and grime, servicing, re-fuelling and re-arming, repairs and replacement panels. -And then there was the perennial problem of inadequately stirred paint. But having said all that, I hope this set of COLOUR CARDS will prove to be an interesting and useful addition to your reference files."

Colour Cards - Set 2 - WW2 RAAF Colours.

1. Foliage Green (1). 2. Foliage Green (2). 3. Earth Brown (1). 4. Earth Brown (2). 5. Dark Green. 6.

Dark Earth (1). 7. Dark Earth (2). 8. Light Green. 9. Light Earth (1). 10. Light Earth (2). 11. Sky Blue. 12. Mystery Sly Blue. 13. Sky.

Colour Cards - Set 3 - More WW2 Colours.

1. Dark Ocean Blue. 2. Extra Dark Sea Grey. 3. Medium Sea Grey. 4. Ocean Grey. 5. Neutral Grey. 6. Dark Olive Drab #1. 7. Dark Green 30. 8. Rust Brown 34. 9. DuPont Sandy Earth. 10. Light Blue 27. 11. PRU Blue. 12. Azure Blue.

Each set is accompanied by four pages of notes. The content of these notes is best explained by quoting the notes for the first two colors of Set 2:

"FOLIAGE GREEN...(1) Foliage Green was an Australian camouflage colour (RAAF Ident No K3/177) which replaced Australian-made Dark Green, late 1941-early 1942. It would appear that Foliage Green was preferred as it was made using one pigment, not a mix of two or more to arrive at the desired result, making the colour more stable and fade-resistant.

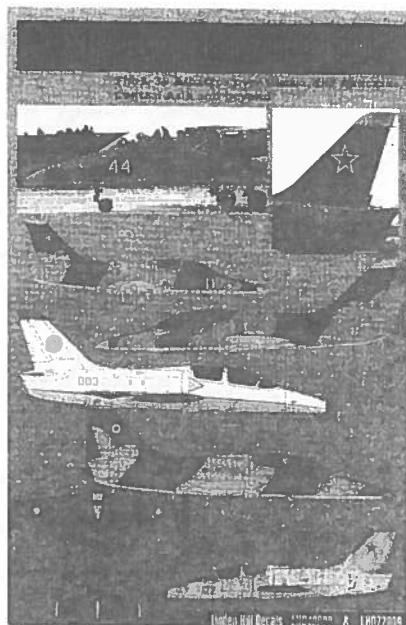
"Occasional argument nowadays about the true colour of Foliage Green can overlook the fact that the wartime aircraft builders, assembly and maintenance centres and RMF stores were supplied by several Australian-based paint manufacturers: British Australian Lead Manufacturers (BALM), Taubmans and Sherwin-Williams, to name three. In such circumstances, degrees of variation between differently sourced batches and over a period of several years might be expected. That said, AHCB nonetheless has reservations about the colour you are viewing here. Read on...

"Over the years, various sources have likened Foliage Green to the USAAF colour MEDIUM GREEN 42, the colour standard for which is matched almost exactly by the green you see on this card. Also, for a very long time the FS 595a/b colour 34092 has regularly been quoted as a near match for both USAAF Medium Green 42 and RAAF Foliage Green. Near, yes, but maybe not near enough for AHCB has often thought this a trifle misleading as none of the several remnants of wartime Foliage Green that we possess, or have seen, have the bluishness which 34092 shows.

"In fact, AHCB is increasingly inclined to view the colour you see here as being rather too light in its tonal value. On one very useful sample of fabric we possess, the weathered Foliage Green topcoat is admittedly rather similar to the colour on this card. BUT where that topcoat - which was obviously re-paint can be lifted and peeled away with a fingernail a less weathered and rather darker green is revealed underneath. That green is virtually identical in appearance to the colour you see on the Dark Green colour card of this set! .

These Colour Sets are available direct from Ian for AU\$20.00 each set mailed within Australia.. For orders outside Australia contact the outlets mentioned above.

Review sample provided by Ian baker of AHCB.



L-39s of the New Great Game: The L-39 Albatros over Russia, the Caucasus, Central Asia and beyond (14 options). 1/72 decals. Linden Hill Decals #LHD72009. Linden Hill Ltd., PO Box 534, Crugers, NY 10521. E-mail: contact@lindenhillimports.com. Web site: www.lindenhillimports.com. \$19.99.

The "Great Game" was the name Rudyard Kipling assigned to the clash of empires in central Asia between Victorian England and Czarist Russian. This region is again the subject of international tensions and one of the most ubiquitous military aircraft in the region today is the Aero L-39 Albatros.

If you plan on building only one model in the markings of a Central Asian Albatros, Linden Hill's latest release is a bit expensive. However, if you (and your club mates), do models of all ten L-39s, the cost come to only about \$2 a model. If you can con a friend into doing models the four Russian Albatroses, this will further reduce the cost per model.

In addition to the four Russian L-39s, markings are provided for aircraft in service with Chechen (yellow '11'), Armenia (red '01'),

Azerbaijan (blue '03'), Uzbekistan (blue '15'), Afghanistan (s/n 0010, 003, & 005), Vietnam (red '8703'), Ethiopia (sn 1709), and Bulgaria (white '209').

The three Afghani aircraft represent three different national insignia of four governments: (1) the "triangular" insignia of the Republic (1967-1979 and 1995 to present), (2) the red "circular" insignia with Arabic iconographics of the Democratic Republic (1979-1983), and (3) the "star" insignia of the Soviet Democratic Republic (1983-1994). [Ed: Dates are from John Cochrane's *Military Aircraft Insignia of the World* (1998).] The only insignia missing to complete an Afghan Air Force collection is the black/red/green roundel of the pre-1967 Kingdom.

The insignia on the Armenian L-39 is just one of the insignia used simultaneously by Armenia. (See letter in SAFO #117.

The three countries outside Central Asia (Vietnam, Ethiopia, and Bulgaria) are a tad less exotic, but still would be most welcome in any collection of models of the aircraft of the smaller air forces.

All the aircraft featured (except two of the Afghani aircraft) are in usual camouflage applied to Czech L-39s with various amounts of repainting to fit local conditions. Two of the Afghani aircraft are in white over bare metal.

The 8-page full-color instruction booklet provides a detailed history of each aircraft; it is very informative given the little that has been published about the history of these air forces after the dissolution of the Soviet Union in 1991. Of special interest are the reasons for the three very different Afghanistan national insignia. FS595 color equivalents are given for the standard camouflage colors of the Czech L-39 as delivered. Color side and top views of all the aircraft are provided along with discussions of the variation in camouflage colors among the various countries.

Obviously this is a great selection for the obsessive small-air-force modeler, but what about the decals themselves? There are two sheets. The largest (126 mm by 205 mm) contains all the national insignia and serial numbers needed to do all the aircraft described. A second smaller sheet (46 mm by 202 mm) contains the smaller marking common to most of the aircraft, but only enough for a couple of aircraft. The decals are printed in vibrant colors and in perfect register. Many of the

insignia are printed in two parts to allow the more delicate aspects to be put in proper register by the modeler. Care must be taken to put on the multilayered decals in the correct order.

Review copy provided by Guy Holroyd of Linden Hill.

Lipetsk Top Gun: The Aircraft of the Russian Air Force's Elite 4.TsBP I PSL (21 Aircraft featured in total). 1/72 decals. Linden Hill Decals #LHD72014. \$24.99.

Lots of Russian stuff on this one (admittedly some very colorful MiG-29, MiG-31, Su-24, Su-25, & Su-27), but still enough non-Russian schemes to interest the modeler of the aircraft of the small air forces: Uzbekistan Su-24MR (white '33') and Kazakhstan MiG-29 (red '03'), MiG-29UB (red '24'), SU-14MR (white '32'), MiG-31B (red '01'), & Su-27S (yellow '05'). Certainly, the surprise here is the MiG-31; who would have thought the MiG-31 would have ever appeared in the insignia of a small air force.

The 10-page full-color instruction booklet contains color photos and top and side-view color drawings of the Russian aircraft as well as color side-view drawings of the Uzbek and Kazakh aircraft.

There are four decals sheets in this set: Two large ones (127 mm by 205 mm) provide the colorful special decorations for the Russian aircraft and the national insignia for all the aircraft. A smaller sheet (130 mm by 105 mm) provides the code numbers, and the smallest sheet (48 mm by 34 mm) provides a code number that was omitted from the third sheet.

Review copy provided by Guy Holroyd of Linden Hill.

[Editor's note: These same subjects are available from Linden Hill in 1/48 scale as LHD 48009 "L-39s of the Great Game" The L-39 Albatros over Russia, the Caucasus, Central Asia and Beyond (14 options) US\$24.99. And, LHD48014 Lipetsk Top Gun: The Aircraft of the Russian Air Force's elite 4.TsBP I PSL (15 Aircraft featured in total) US\$24.99. Also available are: complete Russian Technical Stencil data for the Albatros in 1/72 scale as LHD72015 US\$6.99 and in 1/48 scale as LHD 48015 US\$7.99.]

Ciel de Guerre: Dossiers

TMA SARL, 75 Rue Claude Decaen, Paris 75012, France. E-Mail: airmagazine@wanadoo.fr.
14 € plus postage 3€/5€,8€ (France/Europe/ Rest of World)

La batailles d'Angleterre: Phase 1, La Luftwaffe a l'Attaque. 98 A-4 pages.

Do we need another book on the Battle of Britain, particularly one in French? The answer is a qualified "yes" if it contains information on topics normally not covered in much detail in previously published accounts. Let's look at the table of contents:

Quelques Semaines de Répit; Le Plan d'Invasion de la Grande Bretagne; Radar; L'Attaque des Convoys: La RAF se Reconstitue, 1er au 20 Juillet 1940; Une Journée de Combats; Mercredi 10 Juillet 1940; Le Sauvetage en Mer des Equipages d'Avions; L'Attaque des Convoys; Le

Defense est au Point; 20 Juillet au 7 Août 1940; Observer Corps; Les Barrages de Ballons; Les Tchêques dans la Bataille d'Angleterre.

Several of these chapters cover topics that have received little previous attentions. The chapter on air-sea rescue is unique in that it covers the story from the German point of view [including a table listing the losses of He 59 (37), Do 24 (2), and Br 521 (1) from 7 January to 26 November 1940]. Other chapters of special interest include: Radar, the Observer Corps and Barrage Balloons.

This volume contains 98 photo, 5 maps, six color 3-view drawings [Bf 109E, Hurricane (2), Spitfire (2), & He 59] and 46 color side-view

drawings [Bf 109 (14), Ju 87B (2), Bf 110C (2), He 111H (2), Battle, Gladiator, Hampton, Spitfire (4), Do 17Z (2), Do 17F, Whitley (2), Blenheim IF (4), Ju 88A (4), Defiant (2), Beaufort (2), & Hurricane (4)].

La Bataille d'Angleterre series promises to be an important addition to the literature on the Battle of Britain. If you would be satisfied with a collection of rare photos and beautiful color illustration, then this series can be recommended. If you have a reading knowledge of the French language, so much the better.

Review copy provided by José Fernandez of AirMag.

"Regarding two of the letters in SAFO #117: I can't throw any light on Thomas' MiG model. Probably just a spurious marking. Or just maybe the designer thought that Finland used MiG-17s or (very unlikely) Somali.

“Armenian roundels: The photos from International Air Power Review also appeared in Air Forces Monthly August 2005. Yes, the order of colours in the national insignia seems to be fairly random! The illustration in my 1998 book came from the Armenian Embassy in London in 1996 and those that appeared on Air Zone's roundel wall chart probably came from their embassy in Paris. On my to-do modelling shelf (ever growing!) is a Mil-24 using Linden Hill's Armenian decals.

"I am still amazed at the amount of detail SAFCH members come up with. Excellent articles on Greece and Denmark."

John Cochrane (SAFCH #905), 6 Somerset
Rd., Brighton-leSands, Liverpool L22 2BJ,
England.
E-mail:
john@johncochrane0.wanadoo.co.uk

[Ed: In response to a letter about the accuracy of a published drawing showing an Uruguayan Air Force Mustang with the red/blue of the national insignia reversed, our friend in Uruguay replied:]

"To our friend this is my answer: definitely NO! I have the same drawing but published in a Spanish version of the publication. For information on Mustangs and other Uruguayan a/c, I recommend he visit the following magnificent web site . The SAFCH community will find everything that you love... photos, profiles and much more about Uruguayan military FAU and Navy Aviation - but in Spanish. "Memorias del Tiempo de Vuelo"

de Jorge Cobas (alias Pilotoviejo) is at: www.pilotoviejo.com. This third-world site is much better than many first-world aviation sites!!!!"

Eduardo Luzardo (SAFCH #1383), Picardia
M.267 S.37, 91001 Barros Blancos, R.8 Km.
22,500, Uruguay. E-mail: charrual56@hotmail.com

“One recent bit of (albeit indirect) aviation news: In Estonia, the Government finally got control of the old seaplane base in Tallinn Harbour. The main structure is the seaplane hangar, built during WWI with the (at that time) largest reinforced concrete roof in Europe. After the collapse of the Soviet Union, some Soviet officers had grabbed the area for themselves, claiming that they had “legally” bought it from the Soviet Navy. This took a lot of lawyer and court time to clear up. In the end, said officers robbed the area of anything loose, even dismantling and selling the railway rails.”

Kai Willadsen (SACH #863), Sankt
Jorgensgade 16, 4200 Slagelse, Denmark. E-mail:
kai.willadsen@ofir.dk

"I would like to add some corrections and additions to the article in SAFO #117 on Danish army aviation. There have been many good publications, as early as 1962 by Hans Kofoed: "Dansk Militaerfly gennem 50 år", kompakt og korrekt. Later more, incl. article in TINBOX (very detailed on the C.5) and Flyvehist. Tidsskrift.

"The H-Maskine was a biplane designed by *Orlogsværftet* and built by *Tøjhusværkstederne* i samarbejd med *Orlogsværftet*. It has NOTHING to do with the Thulin H ("Kryssaren"), which was a 3-engined seaplane.

"Fokker delivered five C.5b with Lorraine engines, plus two sets of e-wings. Later, the C.5e was built, the first 7 with Fokker-built fuselages. During production one was fitted with a Bristol Jupiter radial. In all, Denmark had 18 C.5b and C.5e, R-1/18, all b's being gradually converted to e's, when the Lorraines and "b-vinger" were used up. The Lorraine was used until at least 1934; the last "b-ving" was lost when R-10 crashed late in 1938.

"The C.5e M/26, Flyvertropper designation I R, was quite modified from 1934 (R-2 served as prototype), e.g. with u/c as on the later C.5e M/33 (II R and III R). The II R and III R are similar!!! Both with 550-hp Pegasus. The II R served with 3. ESK initially without *motoringskaerm* (Towending). The mechanics found it troublesome to fit, unlike their colleagues with 5. ESK and the III R. On 7 Nov. 1939, it was ordered that all II R/III R should look alike, and thus 3. ESK had *motoringskaermene* fitted.

"The IO (O-Potten) was based on the Fokker C.I, but nearly a new design, like the II O.

"Fokker D.21's J-41 and J-42 were ferried to København the 29 April 1938, via Hamborg, by kaptejerne resp. C. C. Larsen and H. J. Pagh. The photo in Holland was taken at Schiphol in 1932, when a group was on the way to/from Zürich for a contest. The plane far right is KLM Fokker F.7a PH-ADO.

4. ESK would have received the Fokker G.I (IV R). Production had started in the *Vaerksteder*. (workshops)"

Frits Gerdessen, (SAFCH #12), Netherlands.

Surprise at a Hobby Shop

Small air forces enthusiasts who like or collect model and toy airplanes are in for a very pleasant surprise from a Chinese company called Easy Model. The company's products began making their appearance in American hobby shops earlier this year. The highly detailed, plastic aircraft models (it is really unrealistic to call these miniatures "toys") are offered in 1/72 scale. The aircraft come fully assembled and pre-painted and are extremely well packaged. The real surprise is the range of aircraft types and markings. There are 100 aircraft in what appears to be the first set of what one hopes will be a series. While some of the aircraft types will be not be surprising, the choice of markings shows unusual creativity, research and approach.

The five Bf 109G-10 models include an aircraft in Hungarian markings and one in Croatian markings, both circa-1945. While four of five Bf 109-6 models are in Luftwaffe markings, the fifth is marked as an aircraft with the Hungarian Air Force in 1944. The set's offering of the Bf 109E includes four Luftwaffe aircraft and a single example in the colorful markings of the Romanian Air Force. A captured FW-190D-9 "Dora", the long-nosed, high-altitude development from the standard FW-190, is shown in what are most likely immediate post-war Russian markings. The other four "Doras" are all in various German

colors.

One of the five P-40B/C aircraft is marked as an aircraft with the Soviet Naval Aviation's 154th IAP. The P-40E selection includes an aircraft serving with the 7th Royal Australian Air Force squadron and one marked in service with 1942 era Russian squadron.

There are five differently marked aircraft in the series MIG-3 aircraft range and another five differently marked aircraft in the Yak-3 set.'

The Hawker Hurricane Mk II models include not only three aircraft with different RAF markings but one representing an aircraft flown by the Finnish Air Force in 1942 and one flown by the Russians in the same year. The five models representing the tropical version of the Hurricane Mk II/Trop include an aircraft in Iranian Air Force markings, circa 1947, an aircraft in Yugoslavian colors from 1944, and a Hurricane in service with the Russian military in 1941.]

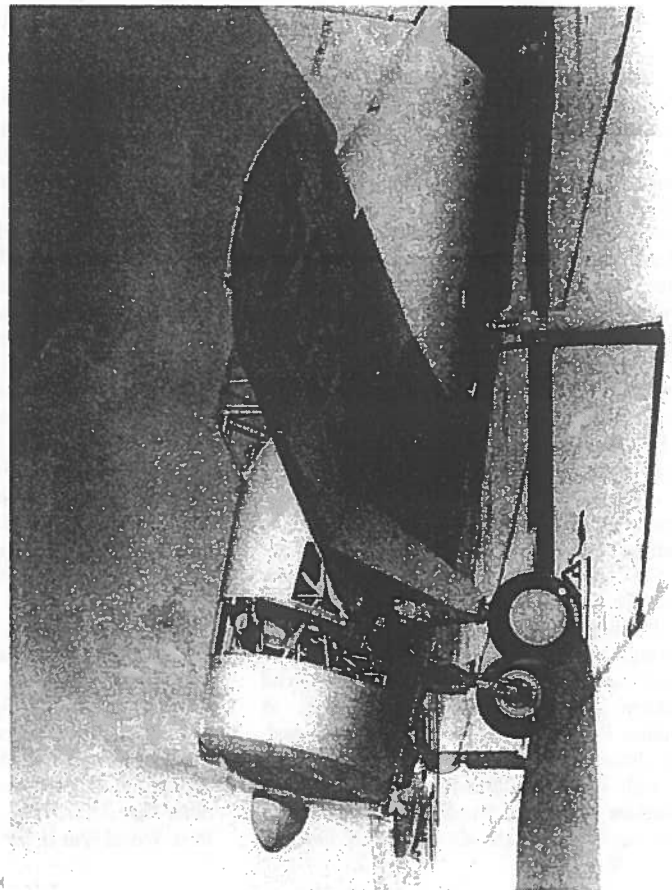
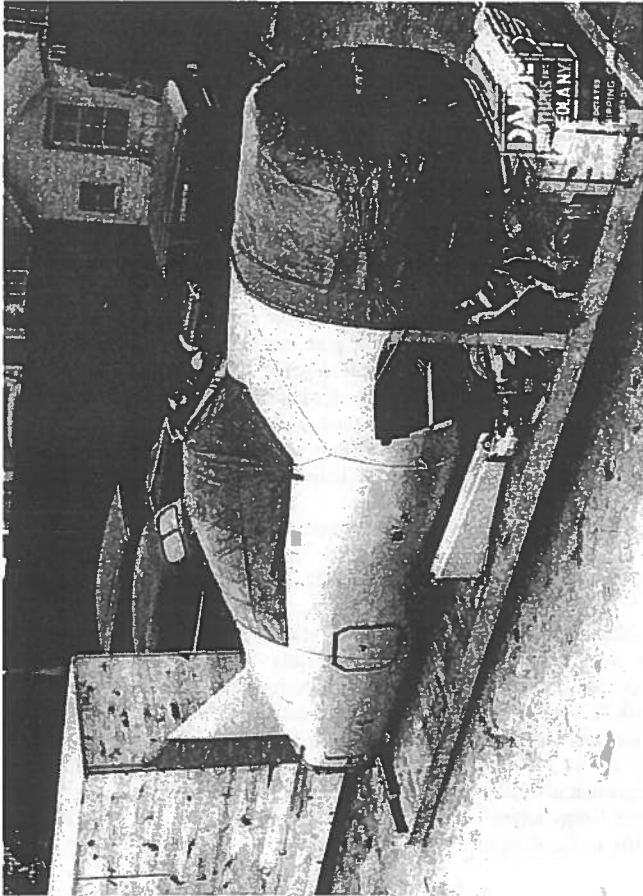
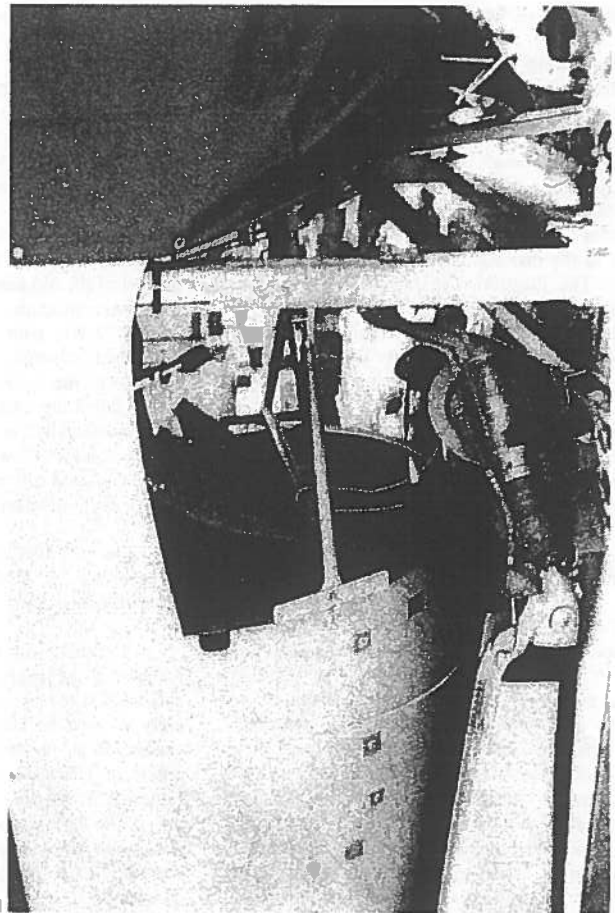
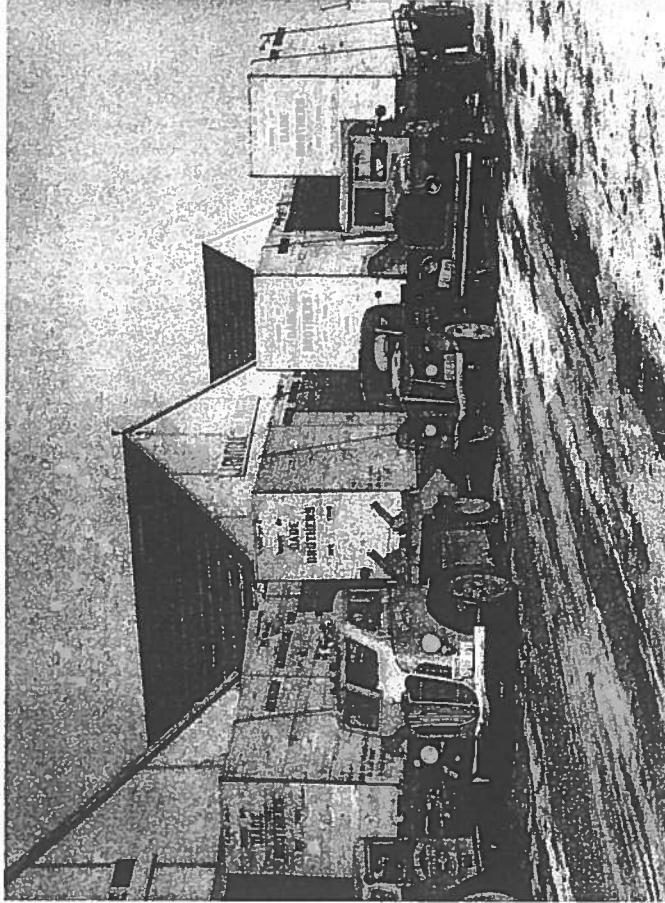
The series also includes five P-47D models, five P-51D aircraft and five Spitfire Mk V aircraft including one in American Army Air Corps markings. The Spitfire Mk V Tropical set also includes one aircraft in American markings and four aircraft in various RAF colors. None of the ten F4U-1/F4U-4 models represent any users other than U.S. Navy or Marine Corps aircraft from World War II, the late 1940s, or the Korean

War. The five Grumman Wildcat models are all in American Navy or Marine Corps colors. [Ed: The catalog shows that Easy Models is aware of the differences between the F4F and FM versions.] The Grumman F6F Hellcat offerings include an aircraft representing a Hellcat assigned to the Royal Navy's 800 Squadron based on HMS Emperor in 1944.'

There is one variable: some aircraft are posed with their landing gear extended, some with the gear retracted. Each model comes with a well-designed stand that includes an identifying plaque. A tempting full-color catalog is also included in the package. The catalog is marked Part 1, so one can somewhat reasonably hope or believe that another series of aircraft is planned.

I consistently paid \$11.00 (US) for one model. The price has not varied when I've purchased the models at two different local hobby shops. While not having conducted an exhausting search of mass-market retailers with toy departments (Target, K-Mart, Wal-Mart, etc.), this reporter has not seen these models at any other locations other than the two hobby shops. [Ed: The Easy Models were advertised in the June '06 Supplement of the Squadron Shop catalog for \$9.96 each plus postage.]

Thomas Wm. McGarry, (SAFCH #650), Lake
Oswego, Oregon, USA.

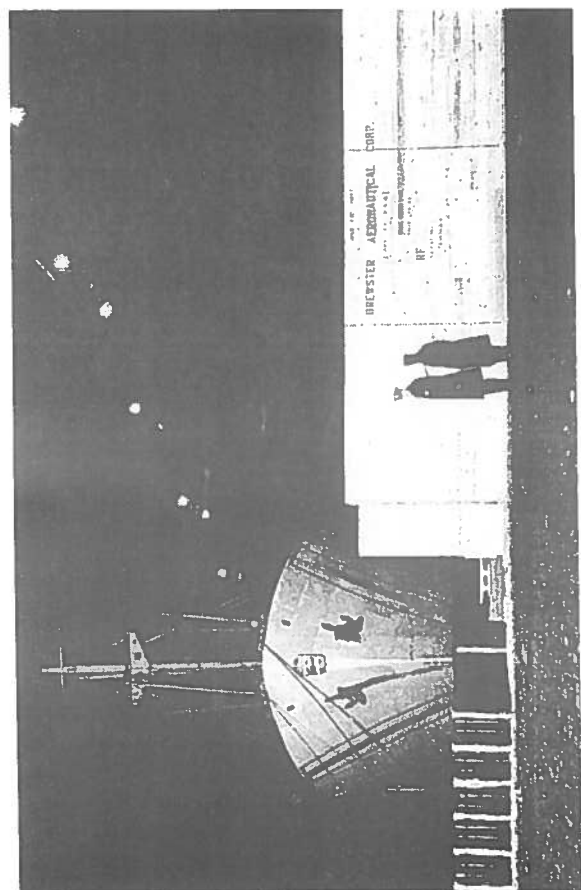


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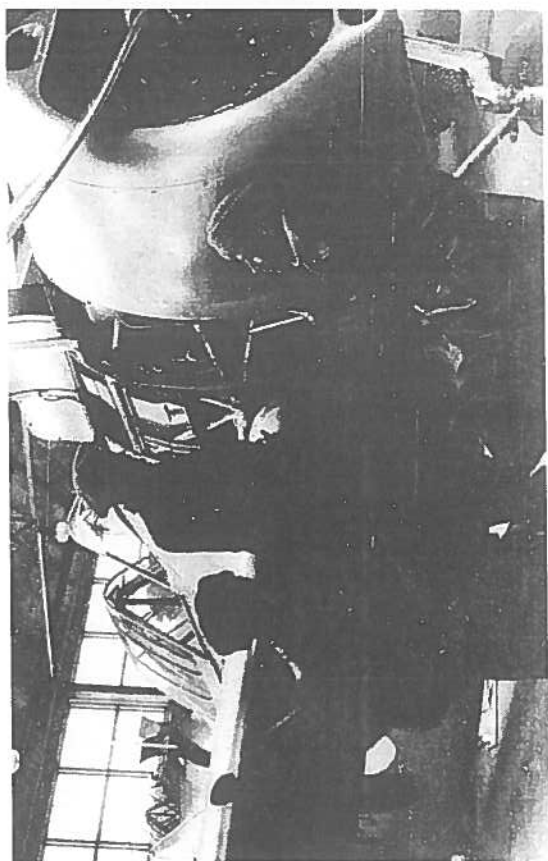
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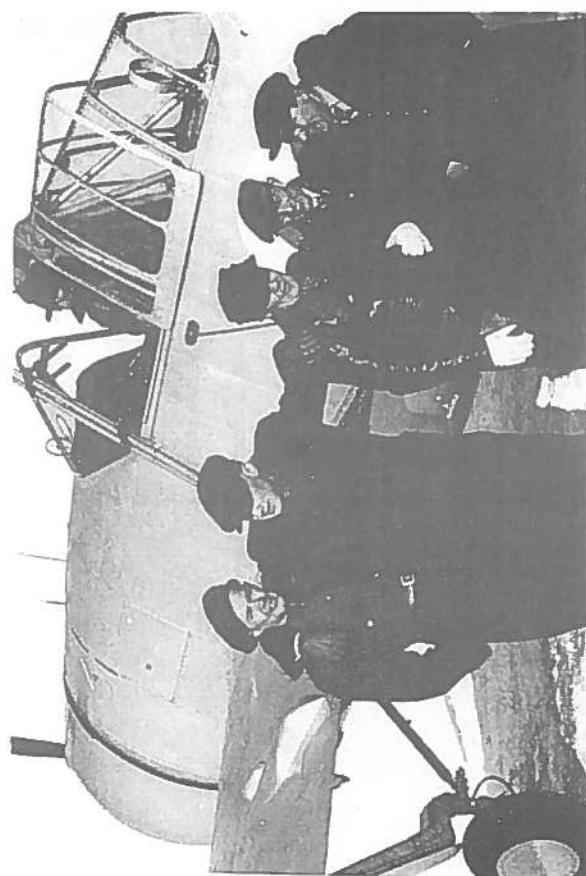
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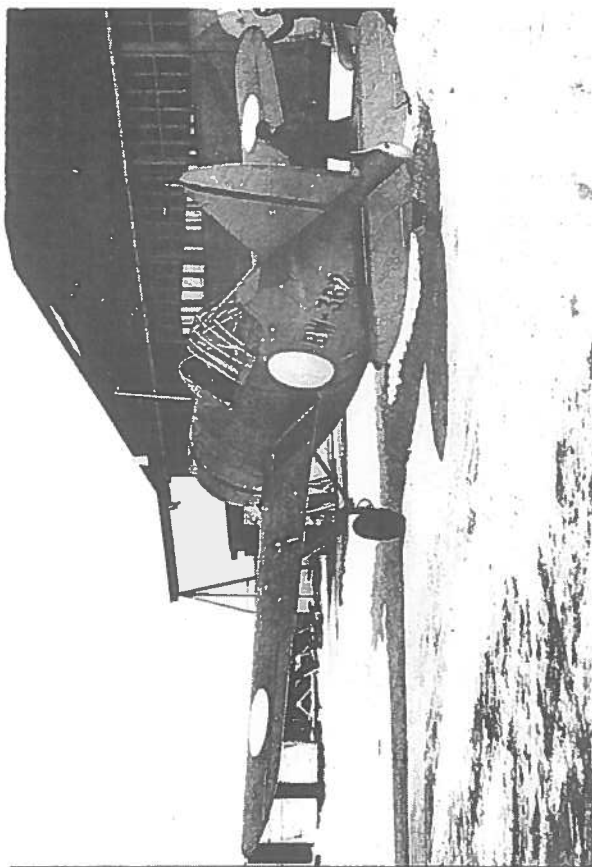
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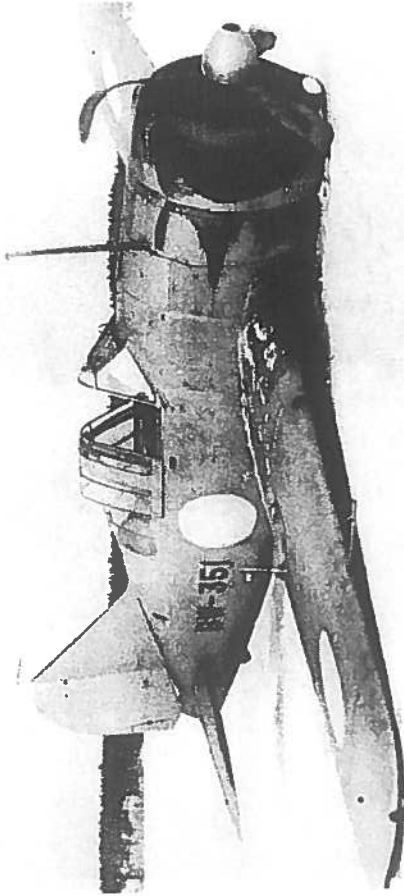
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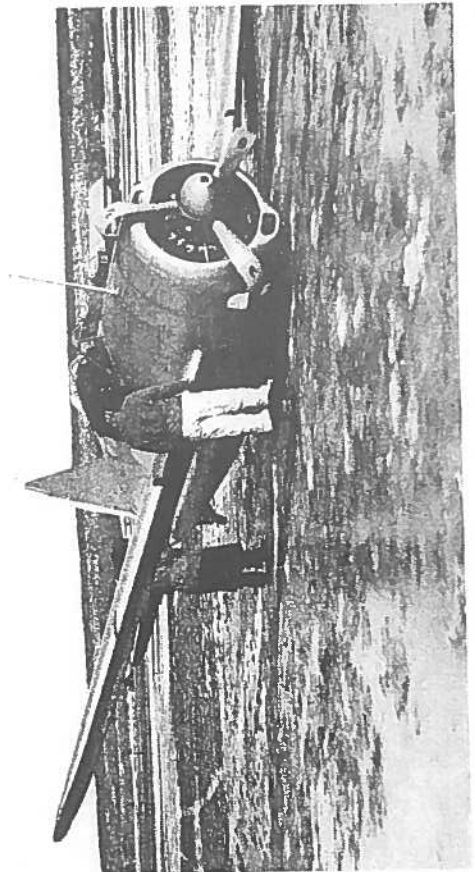
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